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# **LECTURES**

ON THE

# PRINCIPLES AND PRACTICE OF MIDWIFERY.

Πολλης έστι πειρας τελευταιον έπιγεννημα.

LONGINUS.

. . . . . . Si quid novisti rectius istis Candidus imperti; si non, his utere mecum.

HORACE.





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# IPLES AND PRACTICE OF MIDWIFERY.

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## **LECTURES**

ON THE

# PRINCIPLES AND PRACTICE OF MIDWIFERY.

To meet this difficulty the Author has published the present volume. It is his wish to convey to the reader a comprehensive view of the Principles and Practice of Midwifery; and where controversial questions interfere, to give them the fullest and most impartial examination, so that a just conclusion may be readily formed respecting them.

He trusts also that those gentlemen who have attended the obstetric classes at University College, may find these lectures useful in recalling to their minds many points of practice which it was his wish to impress upon their attention; and that in their leisure moments it may not be uninteresting to review more carefully the subjects already brought before them.

In preparing this edition for the press, the Author feels deeply indebted to Dr. Routh for his assistance in drawing up valuable statistical tables, and also to Dr. Alexander Henry for aiding him in arranging the work. To both he returns his warmest thanks.

41, CUMBERLAND STREET,
HYDE PARK.
July 1st, 1862.



## CONTENTS.

## FIRST DIVISION.—GESTATION.

#### LECTURE I. - MENSTRUATION.

Periodical Changes in the Ovary—Changes in Graafian Vesicle—Discharge of Ovum—Structure of Ovum.—Menstruation—Characters of the Discharge—Its Nature—Source—Causes influencing First Appearance and Cessation of Menses—Climate—Researches of Roberton and Whitehead—Statistics of First Appearance—Tables of Roberton, Whitehead, Lee, and Murphy—Other Causes—Periodic Interval—Cessation of Menses—Dependence of Menstruation on the Ovary—Bursting of Graafian Vesicle—Corpus Luteum—Probable Objects of Menstruation

# LECTURE II.— Conception and Gestation; the Ovum or Embero.

Effects of the Seminal Fluid — Changes in the Graafian Vesicle — Corpus Lutsum of Conception.—The Decidua—W. Hunter's Description—Dr. Sharpey's View of its Formation—Decidua Uteri—Decidua Reflexa.—The Imprednated Ovum—Changes in the Yelk-Sac—Chorion—Segmentation of the Yelk—Formation of Germinal Membrane—Amnion—Umbilical Vesicle—Allantois—Ova at Early Periods of Gestation.—Placenta—Formation and Structure—Circulation in Placenta—Situation.—Embryo—Development from Germinal Membrane—Embryo of First Month—Second Month—Third Month—Fifth Month—Sixth Month—Seventh Month—Eighth Month—Ninth Month

## LECTURE III.—THE GRAVID UTERUS.

Changes in Size—Changes in Form and Position—Cervix Uteri—Posizion of the Gravid Uterus,—Special Coats and Tissues of the Uterial Peritoneum—Middle or Proper Coat—New Formation of Muscal Fibres—Blood-vessels—Nerves—Question of their Enlargement—Action of the Uterus

## LECTURE IV .- SYMPTOMS AND SIGNS OF PREGNANCY.

Generally treated as a Medico-Legal Question.—Periods of Pregnant
—First Period—Second Period—Third Period.—First Period—Circulation—Blood—Changes in Uterus and Vagina—Cessation of Mense-Nervous System—Morning Sickness—Changed Appetite—Irritation of Bladder and Rectum—Temper—Disturbed Rest—Headache—Neuralgit Pains—Toothache—Excited Secretions—Salivation—Urine—Kyestem—Researches of Eguisier, Golding Bird, Kane, Elliott, and Parkes—Changes in the Skin—General Value of Signs of First Period 45—56

## LECTURE V .- SYMPTOMS AND SIGNS OF PREGNANCY-continued.

#### · LECTURE VI.-DURATION OF PREGNANCY.

Questions for Consideration—Modes of Calculation—Peculiar Sensation of Conception—Last Appearance of Catamenia—Quickening—Is the Period of Gestation fixed?—Obstetric Calendar—Longest Period of Pregnancy—Tables—Cases of Protracted Gestation—Variability of Period—Shortest Period—Summary—Table for Calculation of Pregnancy—72—87

#### LECTURE VII.—DISEASES OF PREGNANCY.

Classed as Constitutional and Local.—Constitutional Disrases of Circulation.—Palpitation.—Syncope.—Œdema.—Dyspnœa.—Hæmoptysis.—Cough.—Constitutional Diseases of the Nervous System.—Insomnia—Headache.—Convulsions.—Neuralgic Pains.—Toothache.—

Distressing Motions of the Child.—Constitutional Diseases of the Digestive Organs—Nausea and Vomiting—Pyrosis—Cramps of the Stomach and Duodenum—Diarrhœa—Constipation.—Constitutional Diseases of the Secretions—Jaundice—Excessive Salivation—Albuminuria.—Local Diseases of the Circulation—Œdema of the Lower Extremities—Varicose Veins—Hæmorrhoids—Hemiplegia—Paraplegia—Incontinence of Urine—Retention of Urine.—Displacements of the Uterus—Retroversion—Prolapsus. . . . . . 87—105

#### LECTURE VIII .- DISEASES OF THE OVUM.

#### SECOND DIVISION,—PARTURITION.

# LECTURE IX.—THE FEMALE PELVIS: ITS ANATOMY, AND RELATION TO THE FORTAL HEAD.

PELVIC BONES—Coxal or Hip Bones—Iliac Portion—Ischium—Planes of Ischium—Spine and Tuber of Ischium—Sacrum—Its Hollow and Promontory—Coccyx.—Pelvic Articulations—Symphysis Pubis—Sacro-Iliac Articulation—Sacro-Coccygeal Joint—Lumbo-Sacral Articulation.—
The Pelvis—Brim—Divisions of Pelvis—Superior or Abdominal Portion—True Pelvis—How formed with the soft Parts—Influence on Course of Head of Child—Brim of the Pelvis—Its Shape—Outlet of Pelvis—Action of the Child's Head on the Perinsum.—Measurement of the Pelvis—Pelvic Axes—Pelvic Planes—Plane above Brim—Plane of Brim—Plane of Cavity—Outlet—Effect of Dimensions of Planes on the Motions of the Child's Head—Various Measurements.—Measurement

of the Child's Head—Longitudinal and Transverse—Occipito-Bregmatic Measurement—Bi-parietal Measurement—Rotation of Head.— Table of Measurements of Eighteen Healthy Pelves.—Table of Measurements of Pelves by Various Authors . . . . 126—146

#### LECTURE X.—Deviations and Deformities of the Pelvis.

#### LECTURE XI.-MECHANISM OF PARTURITION.

#### LECTURE XII.-MECHANISM OF PARTURITION-concluded.

SECOND STAGE OF LABOUR—Grinding-Pains—Bearing-Pains,—Passage OF THE HEAD—Positions—Table of Positions according to various Authors—First, or Left Occipito-Cotyloid Position—Second, or Right Occipito-Cotyloid—Third, or Left Fronto-Cotyloid—Fourth, or Right Fronto-Cotyloid—Diagnosis of Positions—Fontanelles—Ear Rotation of Head from Third into Second Position—Premature Advance of Forehead—Face-Presentations—Right and Left Mento-Cotyloid Positions—Diagnosis of Face-Presentations—Less Dangerous than was formerly supposed—Time of Labour in Face-Presentations—Dilatation of the Perinæum—Expulsion of the Head and Shoulders—Third Stage of

#### LECTURE XIII.-MANAGEMENT OF NATURAL LABOUR.

#### LECTURE XIV .- MANAGEMENT OF NATURAL LABOUR-continued.

STAGE—Vaginal Examination—its Objects—to determine Protortion between Head and Pelvis—to ascertain Position of Head—
Positions requiring Alteration—Supporting the Perinœum—Funis round
Child's Neck—Expulsion of Shoulders—Management of the Funis.—
Thiad Stage—Removal of Placenta—Abdominal Bandage—Objects
and Mode of Application—Materials—Necessity of Rest to the Patient
—Retention of Placenta without Hæmorrhage—Suspended Action of
Uterus—Treatment—Irregular Contraction of Uterus . 219—231

#### LECTURE XV .- DIFFICULT LABOUR.

Definition.—CLASSES OF DIFFICULT LABOUR.—Tedious Labour—Laborious Labour.—CAUSES OF TEDIOUS LABOUR.—INEFFICIENT UTERINE ACTION
—Over-distension of Uterus—Extreme Obliquity of Uterus—Gradual Excitement—Mental Despondency.
—RIMITATO OF THE PASSAGES—Rigid Cervix Uteri—From Escape of Liquor Amnii—Compression of Head against Pelvis—Constriction of America Lip—Hypertrophy of Anterior Lip—Toughness—Cartinginaus Os Uteri

#### LECTURE XVI-LABORIOUS LABOUR.

THE FOTAL HEAD AS A CAUSE OF DELAY—Irregular Positions

- Pace towards Pubes—Face-Presentation—Transverse Position—Foretell-Presentation—Head of Child too large and ossified—Hydrocetellog — DIFFICULTIES PRESENTED BY THE PELVIS—Masculine Pelvis—

## LECTURE XVII.-LABORIOUS LABOUR-continued.

#### LECTURE XVIII.-LABORIOUS LABOUR-continued.

Management of Cases of Impaction—Question lies between Perforation and the Forceps—Results of Dread of Craniotomy—The Forceps as an Instrument of Compression—Baudelocque's Experiments—Limitation to Use of Forceps in Impaction—Risk to the Mother—Death of the Child to be ascertained by Auscultation—Perforation preferable to the Forceps—Objections to Forceps in Impaction—Testimony of various Authors—Conclusions—Retardation of Head at Outlet—Causes—Accidental Obstructions—Bands and Adhesions—Ovarian Tumours—Polypus—Fibrous Tumour of Uterus—Osteo-sarcoma of Sacrum—Other rare Tumours

#### LECTURE XIX .- OBSTETRIC OPERATIONS.

Classification of Instruments—Principles of their Application.—Operations to save the Mother and Child—Vectis—Description—Its Application limited—Mr. Gaitskill's Directions for using it—Mode of operating with Vectis—Not to be used as a Lever—Disadvantages of the Vectis—Forceps—When to be used—Short and long Forceps—Operation when the Head rests on the Peringum—Where the Head is arrested in the Pelvic Cavity—Rules to be observed—Operation when the Head is fixed in the Brim—Special Forms of Forceps—Unequal Blades—Importance of Vaginal Examination—Operation where the Position of the Head is altered—Face towards Pubes—Face-Presentation—The Os Uteri to be dilated before Application of Forceps

#### CONTENTS.

#### LECTURE XX. - OBSIETRIC OPERATIONS - continued.

DPERATIONS TO SAVE THE MOTHER ONLY—Perforation—Symptoms indiating Necessity for its Performance—Mode of operating when the Head is fixed in the Brim or in the Cavity—Preliminary Measures—Introduction of the Perforator—Crotchet and Craniotomy-Forceps compared —Perforation when the Head is above the Brim of the Pelvis—Case of Elizabeth Sherwood—Other Instruments for Perforation—Dr. Davis's Osteotomist—Baudelocque's Cephalotribe—Objections to these Instruments.—Operations to save the Child—Sigaultian Operation—Cæsarian Section—Indication for its Performance—Cases of Ovate Pelvis—Cases of Mollities Ossium—Tumours and other Morbid Growths—Cautions regarding Statistics—Mode of Operating—Dangers.—Induction of Premature Labour or Abortion—Modes of exciting Action of Uterus—Ergot of Rye—Sponge-tents—Separation of the Membranes—Kiwisch's Douche—Injection of Warm Water. 319—345

#### LECTURE XXI.—OBSTETRIC INSTRUMENTS.

Vectis—Invented by Roonhuysen—Secret purchased by De Vischer and Van de Poll—Modifications in Shape of Instrument—Forceps—History of Invention by Chamberlen — Discovery of Chamberlen's Forceps—Forceps of Chapman, Giffard, Smellie, and Gregoire—Varieties in Construction of Forceps—Length—Length of Handles—Length of Blades—Fenestre—Principles followed in Construction of Forceps—Dr. Davis's Forceps—Cautions necessary in its Use—Simple Forceps to be preferred—Forceps of Dr. Beatty and Dr. Collins.—Instruments for Perforation and Extraction—Perforator—Sir F. Ould's Terebra—Smellie's Scissors—Perforators of Denman, Naegele, Holmes, and Simpson—Crotchet—Craniotomy Forceps.—Table of Measurements of Forceps

# LECTURE XXII.—PRETERNATURAL LABOUR; BREECH, FEET. AND KNEE-PRESENTATIONS.

Definition of Preternatural Labours—Classification.—Breech-Presentations—Best Examples of inverted Position of Child—Positions of the Breech—Anterior Dorsal Position—Posterior Dorsal Position—Diagnosis—Digital Examination—Treatment—Mode of Delivery—Rotation of Child in Posterior Dorsal Positions—Accidents from neglecting it—Time for operating in Breech-Presentations.—Presentations of the Fret—Symptoms—Diagnosis—Treatment.—Knee-Presentations.—Hip-Presentations—Complication of Preternatural Labour—Distorted Pelvis—Hand and Foot Presentation—Heads Locked in Twin-Birth.

370—388

# LECTURE XXIIL—PRETERNATURAL LABOUR; SHOULDER AND ARM PRESENTATIONS.

#### LECTURE XXIV .- COMPLEX LABOUR. UTERINE HEMORRHAGE.

Definition of the Term Complex Parturition—Practical Importance of the Study of Hæmorrhage.—General View of Hæmorrhage—Bichat's Division—Hæmorrhage by Exhalation—Symptoms—Principles of Treatment—Hæmorrhage by Rupture of Blood Vessel—Natural and Artificial Means of Arrest.—Uterine Hæmorrhage—Not connected with Gestation—In early Pregnancy—At Time of Delivery—Peculiar Characters of Uterus at Time of Parturition—Circulation in the Uterus—Arteries—Veins—Researches of Owen, Goodsir, and Simpson—Circulation in the Placenta—Researches of the Hunters, R. Lee, Goodsir, and Weber—Partial Separation of Placenta from Uterus—Sources of Hæmorrhage—Natural Means of Arrest—Complete Detachment of Placenta—Source of Hæmorrhage—Uterus must be completely relaxed—Hæmorrhage from contracted Uterus—Causes—Retained Fragments of Placenta—Slight Laceration of Uterus—Morbid Growths—Reciprocity of Uterine Atony and Hæmorrhage—Conclusions

#### LECTURE XXV .- UTERINE HEMORRHAGE -continued.

Influence of the Nervous System on the Uterine Circulation—Influence of Hæmorrhage on the Nervous System.—Treatment of Uterine Hæmorrhage—Mode of Arrest special—Syncope dangerous—Coagulation of Blood inefficient—Depletion dangerous—Local Application of Cold useful—Its General Application dangerous—Astringents and Styptic of little Use—Stimulants almost indispensable—Opium valuable—Apparent Contradictions in its Effects explained—Ergot of Rye—Its Action contrasted with that of Opium—Electricity—Direct

Irritation of Uterus—External Friction—Introduction of the Hand— Compression of the Aorta—Transfusion—Statistics of Transfusion 425—439

#### LECTURE XXVI.—SPECIAL FORMS OF UTERINE HAMORRHAGE.

FLOODINGS BEFORE THE BIRTH OF THE CHILD—Two Varieties—Accidental—Unavoidable.—Accidental Hæmorrhage\_Causes—Symptoms—Treatment—Rupturing the Membranes—Ergot—Electricity—Stimulants—Objections to plugging the Vagina—Turning.—Unavoidable Hæmorrhage: Placenta Prævia—Source of Danger—Natural Means of Arrest—Effect of Dilatation of the Os Uteri—Arrest of Hæmorrhage from the Arteries—Importance of the Reticulate Structure of the Placenta—Arrest of Hæmorrhage from the Uterine Veins—Complete Separation of Placenta the Natural Means of Arrest—Causes of Failure—Manner and Extent of Attachment of Placenta Prævia—Partial or Complete—Symptoms—Diagnosis—Necessity of early Vaginal Examinations.

439—453

#### LECTURE XXVII.—Special Forms of Uterine H.emorrhage continued.

# LECTURE XXVIIL-Special Forms of Uterine Hemorrhage— continued.

Post-Partum Hæmorrhages — Causes — Improper Interference with Patient—Plethora—Anamia.—Hæmorrhage before the Separation of the Placenta — Causes—Inertia of the Uterus—Symptoms—Treatment—Restoration of Contractile Power of Uterus—Removal of Placenta—Prevention of Relaxation—Abdominal Bandages—Irregular Contraction of the Uterus—Stricture of the Cervix Uteri—Treatment—Hour-glass Contraction"—Morbid Adhesion of the Placenta—Treatment.—Hæmorrhage after the Separation of the Placenta—Causes—Mismanagement—Plethora—Uterine Inertia . 473—486

#### LECTURE XXIX .- PUERPERAL CONVULSIONS.

Danger of Convulsions—Varieties.—STHENIC CONVULSIONS—Circumstances in which they appear—Premonitory Symptoms—Symptoms—Convulsions—Modified by apoplectic Symptoms.—Nature of Pueperal Convulsions—Generally considered Epileptic—Epilepsy and Pueperal Convulsions compared—Points of Agreement and of Contrast—Are Hyperemic Convulsions Apoplectic?—Asthenic or anæmic Convulsions—Causes of Puerreral Convulsions—Classification—Predisposing Causes—Hyperæmia—Anæmia—Toxæmia—Epilepsy a doubtful Cause—Proximate Causes—May be direct or indirect—Direct Cause is impure Blood—Connection of Albuminuria with Convulsions—Indirect Causes—Uterine Irritation—Cause of Irritability of Uterus—Excess of Blood in the Organ—Effect of Convulsive Fit on the Circulation—Convulsions from Irritation of other Organs,—Summary . 487—505

#### LECTURE XXX.-PUERPERAL CONVULSIONS-continued.

Review of Causation.—Treatment of Sthenic or Hyperæmic Convulsions—Premonitory Symptoms—Depletion—Management of Patient
during the Fit—General Treatment—Delivery of Child—Objections to
operative Interference—Unless under certain Conditions.—Treatment
of Asthenic or Anæmic Convulsions—From Loss of Blood—From
intense Pain—Chloroform—Convulsions more dangerous before than
during or after Labour—Contrast in Treatment—Opium—Stimulants—
Depletion—Immediate Delivery not required in Asthenic Convulsions.—
Convulsions from Irritation of Organic Viscera—Treatment.—
Hysterical Convulsions—Influence of Hysterical Temperament in
Labour—Symptoms—Diagnosis—Prognosis—Treatment , 506—519

#### LECTURE XXXI.—RUPTURE OF THE UTERUS.

GENERAL CONDITIONS—Seat of Laceration—Laceration may be Partial or Complete—May occur in any Labour—More frequent in Birth of Male Children—Disproportion in Pelvis generally present—Protracted Labour not a prominent Cause.—Causes of Laceration—Mechanical—Pressure by the Head of the Child—Forceps—Turning—Excitement of Uterus by Ergot—Pathological Causes—The Author's Researches—Confirmed by Dr. Trask and others—Thickening of the Uterus—Softening—Putrescency—Cracks in the Peritoneum,—Symptoms—Premonitory—Symptoms of Laceration variable,—Treatment—Prevention of Laceration—Treatment when Rapture has occurred—When the Head is in the Pelvis—Caution in Use of Forceps—How to apply the Crotchet—Intestinal Strangulation improbable—Treatment when the Child is in the Abdomen

#### CONTENTS.

-Objections to removing it through the Laceration-Dr. Trask's
Statistics of various Modes of Treatment-Gastrotomy-Its Advantages
-Principal Objection is popular Prejudice-Summary of Rules as to
Delivery of Child.—Lacerations of the Os Uteri-More frequent
than is generally supposed-Separation of the Cervix Uteri.—LaceraTION OF THE VAGINA 520-542

#### LECTURE XXXII.—INVERSION OF THE UTERUS. PROLAPSE OF THE FUNIS. PLURAL BIRTHS.

by the state of the Uterus—Causes—Pulling at the Funis—Short Funis

Fire Cause—Spontaneous Inversion—Symptoms—Diagnosis—Treatment—Prolapse of the Funis—In first Stage of Labour—In second Stag a Delivery by the Forceps or turning—Re-position of the Funis—Instrument for.—Plural Births—Symptoms of Twins—Treatment

543—561

#### LECTURE XXXIII.-ANÆSTHESIA.

Defition—Anasthetic Agents—Properties of Chloroform—Action compared with that of other Agents,—Action of Chloroform on the Aspeal Tissues—Anasthetics vary in Action—Action on the Blood— Action on the Nerves—On the Cerebro-Spinal System—On the Refiex System—On the Ganglionic System—Death from Chloroform 561—573

#### LECTURE XXXIV .- AN ESTHESIA -- continued.

# THIRD DIVISION.—LACTATION, TOGETHER WITH POST-PARTUM INFLAMMATIONS AND FEVERS.

#### LECTURE XXXV.—CONVALESCENCE AFTER PARTURITION.

GENERAL VIEW OF THE PHENOMENA OF CONVALESCENCE—Changes in the
Nervous and Circulatory Systems—Lactation—Changes in the Uterus—
Three Periods of Convalescence.—First Period—Dangers of over
Excitement—Too early Application of Child to Breast—Errors in Diet.
—Second Period—Symptoms—Causes interfering with Lactation—
Treatment—Excessive Flow of Milk—Treatment of Deficient Flow of
Milk—Artificial Food of the Child—Treatment of the Mother—Fissured
Nipples—Depressed Nipples.—Third Period—Conditions of Uterus—
After-pains—Coagula in Uterus—Flatus—Neuralgic Pains in Uterus—
Lochia too long Sanguineous—Purulent—Lacerations of the Perinacum—
Treatment.

594—613

#### LECTURE XXXVI.—POST-PARTUM INFLAMMATIONS.

Causes of Inflammation of the Uterus and its Appendages—Various Forms.—Sthenic Inflammation of the Vagina—Causes—Symptoms—Terminations—Treatment.—Asthenic Inflammation of the Vagina—Results—Causes—Symptoms—Treatment.—Inflammation of the Lining Membrane of the Cervix Uteri—Characters—Symptoms—Treatment.—Inflammation of the fibrous Structure of the Uterus—Symptoms—Treatment.—Peritonitis—Symptoms—Treatment.—Inflammation of the Superitoneal Tissue—Generally arises from Metritis—Symptoms—Treatment.—Inflammation of the Uterine Veins—Causes—Symptoms—Pathological Appearances—Treatment.

#### LECTURE XXXVII.-PHLEGMASIA DOLENS.

Definition.— SYMPTOMS.— CAUSES.— History of Theories — Doctrines of Metastasis and of Disorders of the Lymphatics—Dr. Davis's Investigations—Theory of Phlebitis—Researches of H. Lee, Tilbury Fox, and Mackenzie.—Treatment—Local Effects of the Disease—Pelvic Abscess—Paralysis—Phlegmasia Dolens following Puerperal Fever. 629—643

#### LECTURE XXXVIII.—PUERPERAL FEVER.

#### LECTURE XXXIX .- PUERPERAL FEVER-continued.

STRPTOMS—Of Intense Form—First Stage—Second Stage—Extreme Types.—Exysipelas and Puerperal Fever—Symptoms of Erysipelas connecting Links between the two Diseases—Effects of Puerperal Fever in modifying other Diseases—Gastro-Intestinal Fever—Puerperal Mania—Phlegmasia, Dolens—Classification into Puerperal Fever, Erysipelas, and Puerperoid Diseases,—Pathology—Cases presenting Venous Congestion alone—Cases with Scrous Effusion—With Sero-purulent Fluid in the Peritoneum—With Adhesive Lymph in the Peritoneum—Morbid Appearances of Erysipelas . 657—671

#### LECTURE XL.-PUERPERAL FEVER-continued.

NATURE OF PUERPERAL FEVER—Distinct from Peritonitis—Peritonitis may be absent in Puerperal Fever—Distinctions in Symptoms—In Morbid Appearances—Dangers of calling Puerperal Fever Peritonitis—Uterine Phlebitis distinct from Puerperal Fever—Essential Difference one of Preservation and Destruction.—Puerperal Fever as a Zymotic Disease—Characteristics—It is an uniform Disease—It selects a Tisse for its Seat—It has a definite Action on the Blood—The Action of the Poison is modified by the Dose and other Circumstances—It has a Period of Latency—It is generated under a Law of Incubation—Two morbid Poisons may co-exist—Nature of the Puerperal Fever Poison—Treatment—Puerperal Fever must not be treated as a local Inflammation—Prophylactic Treatment—Chlorine—Protosulphate of Iron—Ventilation—Changing the Dress and Bed-clothes—Remedial Treatment—Evacuants—Depletion—Purgatives—Emetics—Diaphoretics—Dispretices—Stimulants

#### LECTURE XLI.—PUERPERAL MANIA.

Causes — Predisposing — Exciting — Symptoms — Prognosis — Treatment 692—696



## XX CONTENTS.

## APPENDIX.

Dublin-									
Cases in a				TAL, DU	BLIN,	from •	15th	Marc	ch, 1745, 701—70
Is there	N UTE	ro-Pla	CENTAL	CIRCUL.	ATION I	—In	jectio	n of t	he Placen
from the	Uterin	e Arte	ries —	Contradi	ctory	State	ment	s — B	onami's I
jections-	-Dr. M	ackenz	ie's Obe	servation	- E	cperiı	nente	of I	Ors. Made
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and Men	gs—Dr	. <b>w</b> . 1	Read's 1	Remarks-	-Does	the	Lini	ng M	embrane
the Uteri	ne Veir	ıs reaci	the Pl	acental (	ælls?-	-Sou	rce o	f Hær	norrhage i
the Uteri Placenta	ne Veir Prævia	ns reach —Chie	the Pl f Source	acental C	ells?-	-Sou om tl	rce o	f Hær terine	norrhage i Arteries
the Uteri Placenta Reasons	ne Veir Prævia	ns reach —Chie	the Pl f Source	acental C	ells?-	-Sou om tl	rce o	f Hær terine	norrhage i Arteries- the Uterir
the Uteri Placenta	ne Veir Prævia	ns reach —Chie	the Pl f Source	acental C	ells?-	-Sou om tl	rce o	f Hær terine	embrane norrhage i Arteries- the Uterir 706—71
the Uteri Placenta Reasons	ne Veir Prævia for not	ns reach —Chie suppo	the Pl f Source sing the	lacental C e is direc e Blood	Xells?- tly fro to be	-Sou om tl furn	rce o ne Un ished	f Hær terine l by 1	norrhage i Arteries- the Uterii 706—71
the Uteri Placenta Reasons Sinuses	ne Veir Prævia for not	ns reach —Chie suppo	the Pl f Source sing the	lacental C e is direc e Blood	Xells?- tly fro to be	-Sou om tl furn	rce o ne Un ished	f Hær terine l by 1	norrhage i Arteries- the Uterir 706—71

# LECTURES ON MIDWIFERY.

FIRST DIVISION.—GESTATION.

#### LECTURE L

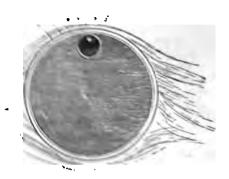
MENSTRUATION.

GENTLEMEN,—The first subject of our attention is, the functions of the generative organs. These are generally enumerated as menstruation, conception, and parturition. Properly speaking, there is but one function—the periodic escape of ova from the coary, and either their expulsion from, or retention and development in, the uterus. If not impregnated, they are either washed away by the menstruous discharge, or dissolved in the uterus; if impregnated, they are retained in the cavity to undergo further changes of development. We shall first consider this function in the unimpregnated uterus; and then observe the effects produced by conception. A brief outine of the changes which occur periodically in the ovary will be sufficient for our purpose.

Periodical Changes in the Ovary.—The Graafian Vesicle or follicle is the seat of the ovum; this gradually enlarges during a monthly period, and approaches the surface of the ovary. The effect of this change is to bring the "cumulus proligerus"—the bed on which the ovum rests—close to the surface of the vesicle. At the point of contact of the vesicle and outer membrane of the wary, the latter—"the tunica albuginea"—becomes so thin that the vesicle projects beyond it. The fimbriæ of the Fallopian tube closely surround this portion of the ovary; and, when the vesicle bursts, the ovum enters the pavilion of the tube and passes through the duct to the uterus.

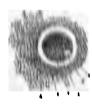
While in the overs, the human ovum is composed, is my, or a to be constructed in a vitelline membrane, so transport to the terrested in the second of the se

Fig. 1.\*



n the transparent membrane containing a watery fluid—the minuter such . ' and at that part of its surface nearest to the themountains, to seen a thely granulated membrane of a tale minute, or small as to be a point—a "marula." This "the perminute spect," and bears the same relation to the granula that much the to the formative cells.

PIN 21



While the above-mentioned are going forward in the ovary, mination of blood to the uterplace; causing in the lower "the heat" or "rut"; in the thunde—

MENSTRUATION.—This dischar; place from the cavity of the ut the time when the ovum is about

<sup>•</sup> Fig. 1. Diagram of a Granfian vesicle containing an ovum. 1 or tissue of overy. 2. External, and 3. Internal, coats of the vesicle, 4. Cavity of the vesicle, 5. Thick tunic of the ovum or 6. Yelk. 7. Germinal vesicle, 8. Germinal spot.

<sup>† (</sup>lyum of sow (after Barry), 1, Germinal spot. 2. Germina

ALCO STATE OF THE PARTY OF THE

into it, and is peculiar to the human female. A similar discharge has been observed by Geoffroy St. Hilaire and F. Cuvier in some of the monkey-tribe; but they maintain that these appearances were coincident with the monthly heat. Müller observes: "During the periodical sexual heat in other animals also—as the horse and the dog—there is sometimes a discharge of blood; but menstruation in the human female is a phenomenon of a totally different nature, and has no connection with sexual excitement." (Elements of Physiology. By Baly, p. 1482.)

CHARACTERS OF THE MENSTRUAL DISCHARGE. - Menstruation may be defined as a red discharge, flowing from the cavity of the uterus, returning periodically within the reproductive period of female life, and dependent on the ovary: it marks the period of puberty. Before this time, the reproductive organs exert no influence; they are, as it were, in a dormant state; but this discharge is evidence that they are roused into activity. This change exerts a remarkable influence upon all the other functions of the body, as is proved by the disturbance caused in them when this function is impaired. So also the striking effect upon the general appearance, the feelings, and the energies of the female, is equally remarkable. Hitherto, sexual differences have been imperfectly defined; now they begin to manifest themselves: the girl becomes more full and round; the voice softer and more harmonious; the neck fuller and the breast enlarged: her gait becomes altered, and her feelings changed. The innocent playfulness, and often awkward carriage, of the girl are exchanged for the modest reserve and graceful dignity of the woman. A new era in her life commences, in which all her mental, as well as personal, attractions exert an influence that

Emollit mores, nec sinit esse feros.

The uterus, in the language of Harvey, "reddens, swells, glows, and becomes, as it were, a living centre, which radiates its influence over the whole economy."

A Red Discharge.—The nature of the discharge has been the

<sup>3.</sup> Yelk. 4. Zona pellucida. 5. Discus proligerus. 6. Adherent granules or cells.

subject of anxious inquiry and some controversy-some stating it to be sanguineous, which others have as positively denied. In cases of imperforate hymen, the menses are retained and accumulate, but no coagulation takes place. The menstrual fluid is described as "a thick viscous reddish brown syrup like treacle, devoid of smell, and not much influenced by exposure to the atmosphere." In addition to this, Gmelin asserted that it contained no globules. Professor Brande, many years ago, confirmed this view, from his examination of the menstruous discharge collected from a prolapsed uterus, "and consequently free from the admixture of all other secretions."\* Neither could be discover bloodcorpuscles; and, although a slight degree of putrefaction had commenced, yet he thinks that the globules of the blood would not have been destroyed by so trifling a change. considered it sanguineous, but blood under a particular condition -" a species of blood changed, separated or thrown off from the common mass by the action of the vessels of the uterus, similar to that of secretion; by which action the blood loses the principle of coagulation, and, I suppose, of life." Later observers, MM.

<sup>\* &</sup>quot;Whilst engaged in observing the colouring matter of the blood, I (Mr. Brande) received from Mr. W. Money, house-surgeon of the General Hospital at Northampton, some menstruous discharge collected from a woman with prolapsus uteri, and consequently free from the admixture of all other secretions. It had the property of a very concentrated solution of the colouring matter of the blood in a very dilute serum, and afforded an excellent opportunity of corroborating facts respecting this principle, which have been detailed in the preceding pages. Although I could detect no traces of iron by the usual mode of analysis, minute portions of that metal may and probably do exist in it, as in other animal fluids I may have examined; but the abundance of the colouring matter in the secretion should have afforded a proportionate quantity of iron if any connection had existed between them. It has been observed, that artificial solutions of the colouring matter of the blood invariably exhibit a green tint when viewed by transmitted light: this peculiarity is remarkably distinct in the menstruous discharge. I could discover no globules in this fluid; and although a very slight degree of putrefaction had commenced in it, yet the globules observed in the blood would not have been destroyed by so trifling a change." (l'hil. Trans. vol. cii. p. 113.)

Donné, Pouchet, &c., with the aid of the microscope, have discovered blood-corpuscles; and Denis and Franz Simon have shewn that the discharge consists of all the elements of blood. Drs. Hassall and Letheby also confirm this view of its nature. The slight putrefaction which took place in that examined by Professor Brande might have acted on the blood-corpuscles; just as the acid secretion from the vagina is now known to destroy them. The results of the most careful inquiries of the present day prove that the red discharge is essentially sanguineous.

Flowing from the Cavity of the Uterus.—Cases of inversion of the uterus have been observed by Ruysch, Sir C. Clarke, Blundell, and others, at the menstrual period; and they found the fluid passing from the cavity of the uterus. Sir C. Clarke could see distinctly the fluid "cozing from the pores of the membrane lining the uterus." Dr. Wallace Johnston relates a dissection made by J. Hunter of a woman who died during menstruation. He found the whole inner surface of the uterus covered with a layer of blood; "but neither in the cavity of the vagina nor upon its inner surface was there the least mark of blood." A similar examination has been more lately made by Dr. Janzer, on a girl who was murdered four days after menstruation. He found the uterine mucous membrane "much swollen between the body and neck. In the uterus itself, it formed a velvety membrane, glossy and brilliant, easily detached with the handle of the scalpel, and presenting a fine net-work of vessels. This mucous membrane was evidently thickened; it was composed of the uterine glands, ranged perpendicularly alongside each other, and fitted with cylindrical epithelium, not ciliated. The structure between the uterine glands was composed of a network of delicate fibres, of some nucleated cellular fibres, and of amorphous tissue. surface of the uterus was covered with a thin layer of mucus, and lined with the cylindrical epithelium, without cilia. The orifices of the Fallopian tubes were open. The vaginal mucous membrane was pale, but was only covered with a thin layer of mucus containing epithelial cells . . . It results from this observation, that the mucous membrane of the uterus prese struction, characters analogous to those whi

gestation; such as the hypertrophy of the uterine follicles and the disappearance of vibratile cilia." (London Journal of Medicae, April, 1850.) Hence, then, the inference which Pouchet asserts, that this hypertrophied mucous membrane is deciduous every monthly period, just as it is at the termination of gestation.

Returning periodically within the Reproductive Period of Female Life.—The reproductive function in the female constitution must be considered as superadded to the functions of life. The uterus may be absent without interfering with these; but, when present, its influence is paramount. Its leading duty is the development of a new being. The blood is not merely called upon to supply materials to an organ growing most rapidly, and to support in their integrity the different tissues of which the uterus is composed, but also to afford nutriment for the new structures which form the fœtus. Hence it is only when the development of the female is perfectly completed, the body fully formed, the structures matured, and the blood called upon to maintain them in that state, that the constitution is prepared to meet the demands of the uterus. The period of puberty implies that the constitution is approaching to this maturity; and the menses commence precisely at that time.

So, also, when the different tissues begin to give evidence that they are yielding to the influences constantly acting upon them—when they become harder, more contracted, less vascular, and manifest a decay which the constitution can no longer arrest—it is then that the uterine function ceases, and with it the menstrual discharge. These limits embrace a period of about thirty years, during which time the woman is capable of conception. In these climates, the age at which the discharge first appears is generally fifteen; it ceases at about forty-five; but this is liable to great variation.

CAUSES INFLUENCING FIRST APPEARANCE OR CESSATION OF MENSTRUATION.—Climate.—The influence of temperature in hastening or retarding the menses has been long maintained. In the tropics, it is said, puberty is earlier and old age approaches sooner than in these temperate climates; while in the frigid zone the menses appear much later. The distinguished Haller and

Denman were led to believe this, which in fact became the popular opinion. Prideaux, in his Life of Mahomet, states that his marriage with Ayesha was consummated when she was nine years of age; and this supposed precocious puberty has been the foundation for a theory of the brilliant Montesquieu to explain polygamy in the East. "Women," says he, "in hot climates are marriageable at eight, nine, and ten years of age. Thus in these countries infancy and marriage go together. They are old at twenty. Their reason, therefore, never accompanies their beauty. When beauty demands the empire, want of reason forbids the claim. When reason is obtained, beauty is absent. ought therefore be in a state of dependance; for reason cannot procure in old age that empire which youth and beauty could not give. It is therefore natural, that in these places a man, where no law forbids, should leave one wife and take another; and that polygamy should be introduced." (Esprit des Lois, liv. xvi.)

Linnæus is quoted as an authority to prove the effect of cold climates. He is stated to have said in his Flora Lapponica: "There were many women whom I have seen here exempt from this law for the whole period of their lives; but these, when married, remained sterile. I have even known young girls who observed these critical periods in summer only and not in winter; and others who had them only once in the year; these, as often as I have seen them, had cedematous feet." Linnæus might have made the same observations if he had been studying British Flora in place of those of Lapland, because these irregularities were obviously the result of disease.

Statistics of First Appearance of Menses.—The determination of a question of this kind is attended with great difficulty, because there are many secret causes of derangement depending on consti-

<sup>\*</sup> Fuere e: fæminæ plures hic quas vidi, per totam suæ vitæ periodum ab hac lege exceptæ, licet hæ maritatæ steriles persistant. Novi et juvenculas quæ non hyeme sed solâ modo æstate has observant crises; imo et alias quæ semel in anno purgabantur, et hæ, quotquot vidi, pedes ædematosos habebant."—Flora Lapponica.

tutional peculiarities; and it is one upon which it is very hard to obtain any satisfactory evidence. Mr. Roberton of Manchester has, however, given the subject his closest attention; and to him we are indebted for having first directed the attention of the profession to these popular errors. He has exposed them by proving that, in this temperate country, there is a great variation in the time when the menses first appear; and also, from a review of the statements made by travellers, who are considered to be generally faithful in their accounts, he has shewn that climate does not produce the effect which is attributed to it. He has given a table showing the results of his enquiries in 450 cases. Dr. Whitehead of Manchester has followed the same course in 4000 cases; Dr. R. Lee in 1160 cases; and ourselves in 560 cases. In each report, the age is given when the menses first appeared, showing a variation from nine years to twenty-six years.

FIRST APPEARANCE OF MENSES.

Age.	Mr. Rober- ton.	Dr.White- head.	Dr. Lee.	Dr. Mur- phy.	Total.
9			11	3	14
10		9	55		64
11	10	26	52	15	103
12	19	136	86	37	278
13	53	332	153	57	595
14	85	638	204	107	1034
15	97	761	201	119	1178
16	76	967	154	110	1307
17	57	499	101	57	714
18	26	393	78	34	531
19	23	148	33	9	213
20	4	71	23	6	104
21		9	6	3	18
22		6	2	2	10
23		2	$\frac{2}{1}$	1	4
24		1		l l	1
25		1		1	ī
26		1	•••		1
	450	4000	1160	560	6170

These tables prove that, in these countries, puberty may remence at nine, ten, or eleven years. Had any of the 181 is traces quoted lived in the fervid East, they might have been arriageable; at least the slaves of the harems of these polymic countries. The latest period seems to be twenty-three pars; although Dr. Whitehead mentions instances in which the least did not commence until twenty-four, twenty-five, and muty-six years. The largest number quoted were at the ages of lancer, fifteen, and sixteen; the last having the highest number. These facts are sufficient to prove a great variation in the times the first appearance of menstruation.

Mr. Roberton has quoted several authorities to shew that, in inferent countries, the difference in the ages at which this distance first appears is not so great as is stated. Tooke, in his library of the Russians, states that, among the races bordering the Arctic Circle, puberty commences at twelve and thirteen are of age. Mr. Crawford and Sir Stamford Raffles give tolence that the same is the case in Java and the islands of the hand Archipelago. Dr. Nicholson of St. John's, Antigua, and that there and in Grenada the age of puberty is the same in this country. These facts go far to overturn the assumed promity of women in hot countries; but still the nature of the ridge is sufficient to prove the difficulty of accuracy. This has is not, like the growth of the beard, a matter for public increation.

There are many causes besides climate which contribute to the this discharge. The enervating influence of extreme mation, where there is a luxurious indolence coupled with sere-excited imagination; much sedentary occupation with active exertion; the continued excitement of public amusements, not much calculated to moderate precocious desires; the field but demoralised manners which too often prevail in the centres of civilisation — all these causes conspire to excite the prematurely to activity, and hasten the catamenia in perate climates. In those oriental countries, where sensuality to part of the religion, where there is a total disregard of moral restraint, and sensual indulgence is carried on to an

unlimited extent; it is not surprising to read of early marriages, as they are called, and of the child becoming a woman at nine, ten, or eleven years of age.

The Periodic Interval is generally twenty-eight days, although there are many exceptions. In some instances, the discharge returns every fortnight; in many every three weeks; and there are cases where it is delayed for five and even for six weeks.

The Cessation of the Menses generally takes place about the forty-fifth year; but the time of cessation of the function varies just as much as that of its commencement, if not more so. When the function of the womb ceases, and the organ becomes superannuated, it is liable to morbid changes of structure, which are often preceded by a sanguineous discharge; as the catamenia decline, these commence, and for a long time observe the same law of periodicity. Thus, in many instances, the menses seem to be prolonged long after they have ceased. It is difficult, therefore, to determine the time of cessation with accuracy. Mr. Roberton makes the limit between thirty-six and seventy years. In the largest number, the menses ceased at fifty years of age.

DEPENDENCE OF MENSTRUATION ON THE OVARY .- When the ovary has been congenitally absent, atrophied, or removed, the menses have been absent or ceased to flow. When the ovaries are present and the uterus is atrophied or deficient, a distinct periodic molimen has been observed (see Dr. Oldham's case. Proceedings of the Royal Society, vol. viii. p. 377.) intimate relation between the periodic growth and bursting of the Graafian vesicle and the menses, is now established, and proves that this discharge is only part of the function which the ovary fulfils-the periodic discharge of ova. In 1797, Cruikshank examined the ovaries of a girl who died during the menstrual discharge, and found traces of a ruptured vesicle; his observation then stood alone and unconfirmed. It was not until within the last few years that a multiplied evidence has given it the fullest confirmation. researches of Drs. Girdwood, Lee, Dalton, of Pouchet, Négrier, Gendrin, of Raciborski and Bischoff-all establish the fact first observed by Cruikshank. The flow of the menses is the crisis which denotes the bursting of a Graafian vesicle and the escape of an ovum.

Bischoff lays down the law of reproduction very clearly. "The ova" (he says) "which form in the ovaries of individual females, are submitted to a periodic maturation, even with mammiferæ and man. Their maturity is quite independent of the action of the semen It is at the period called in animals 'rut' and in women 'menstruation,' that these ripe ova detach themselves from the ovary and are expelled. There is manifested in animals, as in women at this period more than at any other, sexual desire. When intercourse takes place, the ovum is fructified by the action of the sperm. When this does not occur, the ovum does not the less detach itself from the ovary and descend into the oviduct, even to the uterus, where it is destroyed." (Annales des Sciences Médicales, Août 1844, p. 108.)

The Graafian Vesicle.—We have already alluded briefly to the changes going forward in the ovary—the development and bursting of the Graafian vesicle; but, in order to understand some practical questions, it is necessary to be more exact. We have to consider what the Graafian vesicle is, and what are the changes it undergoes from the period of its bursting to expel the ovum until it disappears. The language of Dr. A. Farre is clear and expressive.

"The ovisac" (he says.) "is always at first seen lying perfectly loose in a little cavity, excavated as it were in the substance of the surrounding tunics. Subsequently a covering or tunic, consisting of rather dense connective tissue, susceptible of becoming highly vascular and closely connected with the ovarian stroma, is gradually formed upon the outer surface of the ovisac, with which this outer covering becomes closely united. This is the structure termed by Barry the tunic of the ovisac; and it is by the union of these two that, according to his observations, the Graafian vesicle is formed. At this stage of its development, there exist all the elements of the completely developed follicle; viz., the outer vascular or fibrous coat, the inner softer layer or proper tunic of the ovisac, and the still more internal epithelial layer of granules representing the membrana

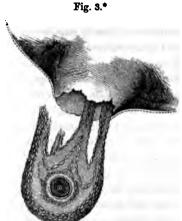
with the elements, at least, of the ovum, and the fluid contents of the sac." (Cyclopædia of Anat. and Phys.: Uterus and Appendages, p. 555.)

This follicle increases in its size as it approaches the surface, in consequence of the increase of its fluid contents, supplied by minute capillaries, which form a rich net-work on the inner surface of the ovisac, giving it a bright red colour. The true ovisac becomes thickened; and blood is exuded in the interior, filling up the space between the granular disk with the ovum and the thickened wall of the vesicle. This blood coagulates into a dark red clot.

Rupture of the Graafian Follicle.-While these changes are going forward within the follicle, preparation is being made externally for its rupture. The base continues imbedded in the substance of the ovary; but the upper portion projects above it. At the most salient portion, increased vascularity is observed: the peritoneum and the underlying tissues becoming exceedingly red. The tunics of the Graafian follicle become extremely thin at the point of rupture, and are so intimately united with the tunica albuginea and peritoneum, that it is impossible to separate them. Upon the surface of the most salient portion of the projecting follicle, the peritoneum may be wanting; the tunica albuginea has become greatly attenuated; whilst internally the coat of the follicle is thinnest at this point. A very slight force is sufficient to cause the rupture of the follicle, which is attributed to the accumulation of its fluid contents. "It is believed by Coste that, when the ovisacs have reached this point, which is the full term of their growth, they may remain stationary until a state of excitement arises, produced partly by the maturity of the ovum, partly by the approach of the sexes; and that it is under the influence of such excitement that the rupture of the follicle most commonly takes place." (Cyclopædia of Anat. and Phys., loc. cit. p. 559.). This is important, as proving that conception may take place not only at the menstrual periods, but in the intervals.

The increase of the fluids in the ovisac, whether of albumen or blood (Pouchet thinks the latter), becomes so great that the

walls are distended to their utmost; but, as they are not equally



elastic, the effect is not the same. The outer tunic will not yield; and consequently the inner or true ovisac, having yielded, is thrown first into a waving line, and ultimately into folds. The combined pressure bursts the follicle; and the ovum escapes, carrying with it the retinacula and a portion of the granular membrane.

The Corpus Luteum.—If a section be made through the centre of the project-

ing follicle, an ovoid cavity is observed, containing usually a deep red clot, having no adhesion to the walls of the cavity, and easily washed away. After washing out the contents of the follicle, the inner surface of the ovisac is exposed. Dr. A. Farre has occasionally seen this to be of an intensely red colour, from the surface being covered by a rich net-work of capillaries filled with blood. "But most commonly the colour of the ovisac throughout, as far as the outer tissue of the follicle, is at this time a clear, pale, chrome yellow, this coat being now very soft in texture." (Cyclopædia of Anat. and Phys., loc. cit. p. 557.) Thus the ovisac becomes the "corpus luteum." The yellow colour is caused, like that of the yelk of the bird's egg, by the penetration of oil-globules within the tissues of the ovisac.

When the ovum has escaped, the outer tunic will by its elasticity contract; but the inner coat—the true ovisac—now the corpus luteum, having already increased in a greater degree than the outer, cannot retract; the waving line is consequently thrown into folds. As the contraction of the outer coat continues, the folds first, like convolutions, become more compressed, and form

<sup>\*</sup> Ovum of rabbit escaping from

angles which, meeting in a common centre, give a stellate appearance to the cicatrix. This gradually disappears as new vesicles advance to maturity; and the closure of the aperture by the cohesion of the opposite sides occasions a drawing together of the surrounding parts, and causes the ovarian surface to sink inwards; hence the indented or fissured appearance of the ovary in advanced life, as compared with the ovary of commencing puberty. The cavity of the follicle contracts to the stellate cicatrix in about a month, and disappears altogether in about two months.

Such are the changes which take place in the Graafian follicle after the ovum has escaped; such is the formation of the corpus luteum, to which we shall have again to refer. The time when the ovum enters the uterus; how long it may remain there in its integrity; whether it is washed away by the menstrual discharge or is dissolved in the uterus; all are questions to which no answer has been or, perhaps, can be given.

Probable Objects of Menstruation.—It is not necessary to dwell on the causes of menstruation as assigned by the older authors—the moon, fermentation, plethora, etc.; but a few words may not be out of place as to its final cause—as to the object of the discharge in the human female.

At the time of conception, the uterus is much more injected. and its vessels are in much greater activity, than at any other period. There is a constant demand for new materials for the growing feetus and the enlarging uterus. This demand may be made at any time; and the vascular system must be prepared to meet it, without causing functional disturbance. The periodic menstrual molimen which takes place, seems to answer this purpose. The uterine circulation is not taken by surprise when called upon for an additional supply. This condition of the uterus may be best understood, if compared with those cases where, in other situations, the blood is suddenly called upon to supply new materials; for example in wounds or fractures. The distension of the capillaries is accompanied by all the attendants of high functional disturbance which constitutes inflammation. The phenomena of gestation have been characterised as a natural inflammation; but, if so, it is an inflammation without any great

vascular disturbance, because the vessels have been accustomed to periodic congestion—the menstrual molimen.

This being the probable object of the menstrual molimen, the purpose of the discharge in the human female may be inferred, if we consider the difference of her condition from that of the lower animals. She alone is subject to the restraint of a moral law, a wise and necessary law for her happiness and the perfection of our race, but still a check upon the influence—the passions -which must result when the generative organs are in a high state of increased vascular activity. In the lower animals, if sexual desire be not gratified, the heat, as it is called, is of the most distressing character: in women the same vascular activity is at once relieved by this discharge; no inconvenience is felt from the series of active operations going on in the ovary, nor is any impulse given to infringe a moral law. If this view be correct, we have an illustration of the adaptation of natural to moral law, each perfect in itself and founded on a basis as different as mind and matter, but still harmonising with each other, and proving the unity of design in the works of an all-wise Being.

## LECTURE II.

CONCEPTION AND GESTATION: THE OVUM OR EMBRYO.

Effects of the Seminal Fluid: Changes in the Graafian Vesicle.—
Hitherto we have briefly considered the development and expulsion of ova uninfluenced by the spermatozoa. We have now to examine the changes produced by the seminal fluid. The ovary, the Fallopian tube, and the uterus, all give evidence of its effect. In the ovary, the Graafian follicle becomes greatly increased in size, occupying nearly one-fourth of the ovary; which, when impregnated, is larger than that on the opposite side. When the ovum has escaped from its cavity, the walls do not collapse and form a cicatrix in the same limited time; on the contrary, the cavity remains to the fourth and even to the sixth month of gestation, and traces of it can be observed, as Dr.

shown, at the time of delivery. The characters of the follicle are, as it were, magnified. The outer vascular tunic is more distinct; the true ovisac or "corpus luteum" is so large as to become a leading feature; and within this a lining membrane is formed, which is white, having the milk colour, and in some degree the consistence, of cartilage. This membrane is of low vitality, and is probably formed from the blood-clot contained in the follicle. It is evidently a new formation, and will explain perhaps the cause of the differences of opinion as to the situation of the corpus luteum. The Graafian follicle at this time presents three coats; the outer vascular red tunic; the middle yellow corpus luteum; and the inner newly formed milk-white lining membrane. Hence Dr. Montgomery, having examined the Granfian follicle of conception only, was led to believe that the corpus luteum was a new growth between the coats of the vesicle. now, however, proved that the inner lining membrane is superadded after conception; and that the corpus luteum is the true ovisac. This is greatly increased in size, and its plicated condition is much more obvious; vessels run numerously in straight lines from without inwards, and probably lie within the sulci which are formed by the folding of the sac. Dr. Montgomery injected these vessels so as to render the yellow mass perfectly crimson.

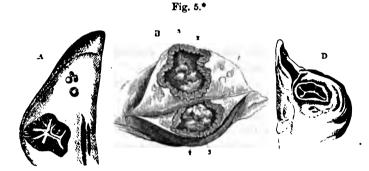
Fig. 4.\*





<sup>\*</sup> The ovaries of a woman, who died when three months pregnant.

The presence of the corpus luteum in the ovary has been considered an evidence of conception; recent researches have shewn that the virgin ovary may also present a corpus luteum, but it



cannot exhibit the magnified characters of the gravid Graafian follicle. When the pregnant ovary is divided, the space which the follicle occupies, its enlarged cavity surrounded by a magnified corpus luteum—all prove impregnation. These characters have been observed by Dr. Montgomery three months after conception. He has described the progressive shrinking of the sac at the sixth week after impregnation—at two days after delivery—and even in the twelfth week, when a distinct stellate cicatrix remains, very different from that in the virgin ovary.

Conception may occur while the ovum is in the ovary, or in its transit through the Fallopian tube, or when it is in the uterus. Whenever it happens, increased vascular activity with corresponding change of structure takes place, both in the ovary and in the uterus. Those which take place in the ovary have been described; we have now to consider the changes which occur in the uterus.

<sup>\*</sup> Fig. 5. Corpora lutea at different periods. A. Two days after delivery. D. The twelfth day after delivery. After Dr. Montgomery. B. About sixth weeks after impregnation, showing the plicated form. 1, Substance of the ovary. 2, Substance of corpus luteum. 3, Greyin and the cavity. After Dr. Paterson.

THE DECIDUA is a membrane which, as its name implies, is detached from the uterus at the birth of the child: its formation is the result of impregnation. Dr. William Hunter described it as a new membrane lining the cavity of the uterus. He supposed that the ovum, on its entrance, detached a portion from the uterine surface, and formed a membrane surrounding the ovum, called by him "decidua reflexa." The space left by the detached portion was afterwards supplied by a new menbrane, which he named "decidua serotina." This explanation was received until the last few years, notwithstanding some obvious objections. It assumed that the ovum had the power w detach this membrane; while nothing is more certain than that the movements of the ovum must be perfectly free: if they be opposed, it becomes adherent, as in extra-uterine fœtation. Os this assumption also, the position of the ovum must be fixed in the neighbourhood of the opening of the oviduct-the Fallopian tube; but the ovum is often attached low down to the body and even to the neck of the uterus, and the decidua reflexa is found reflected from below upwards in place of from above downwards.

The researches of later inquirers have proved that the decides is not a new membrane. Dr. Sharpey has shown that it has all the characters of the mucous membrane lining the cavity. The openings of the utricular glands—the foramina—are larger and more distinct; the simple glands themselves become compound; and there is every proof of hypertrophy of the membrane. It is also a soft mass, and, before the cavity of the uterus becomes enlarged completely fills it, so that the ovum, on entering the cavity, may glide through the softened structure or rest at any given point. The ovum is embedded in this tissue, which gradually encloses it and forms the decidua reflexa.

Within the first month of gestation, the ovum lies loosely in the chamber so formed, but afterwards attaches itself to the uterus. As soon as this takes place, the development of the foctus increases more rapidly: the ovum enlarges, and with it the decidua reflexa; so that ultimately it becomes closely applied to the decidua uteri, and seems to form with it a single membrane. As

m commences to grow, the base of the chamber formed by dua reflexa expands, and a rapid formation of decidua ace between the ovum and uterus—the decidua serotina. point the ovum unites itself to the uterus; the villi of rion attach themselves to the little depressions on the; while offsets of this membrane dip down between the en to the surface of the chorion, so that these villi are ded on every side by dissepiments of the decidua.

Decidua Uteri, at the earliest period of pregnancy, is a soft mass. Its internal surface is not perfectly smooth, but levated into numerous projections, having little tubes or running between them. The whole of this surface is with minute perforations, which give it a cribriform nce. In some cases of early abortion, this membrane has rown off entire, retaining the shape of the uterus. Iter has given an example (fig. 6). The outer surface is



rugged, not unlike a retained coagulum, but differs from this in possessing an organized structure. Many years ago, Dr. Montgomery first pointed out this peculiarity. "Repeated examinations," he says, "have shown me that there are, on the external surface of the decidua vera, a great number of small cup-like elevations, having the appearance of little bags, the bottoms of

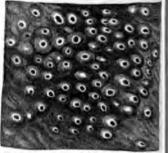
are attached to, or embedded in its substance; they then or belly out a little, and again grow smaller towards their r uterine end, which in by far the greater number of an open mouth when separated from the uterus. Some 1, which I have found more deeply embedded in the were completely closed sacs. Their form is circular or

<sup>\*</sup> Fig. 6.—Decidua vera. After W. Hunter,

very nearly so; they vary in diameter from the twelfth to a sixth of an inch, and project about the twelfth of an inch from the surfact of the decidua." (fig. 7.) (Signs of Pregnancy. Ed. 1837, p. 133) This appearance has now been proved to arise from the enlarged utricular glands; which, when the decidua is separated

from the uterus in abortion, are either torn across, leaving cup-shaped cavities, or are separated entire, forming "the completely closed saes," described by Montgomery. As pregnancy advances, these characters disappear; the membrane becomes thinner, except where the placenta is being formed, but it still retains its spongy character.





The Decidua Reflexa encloses and protects the ovum; with the growth of which its development therefore corresponds. This little sac is generally found near the opening of the Fallopian tube; but it may be met with elsewhere. It has been observed from the size of a pea to that of a hazel-nut. "As the development proceeds, the feetal protrudes gradually into the uterine chamber, in the form of an incomplete sphere, whose upper pole rises free into the uterine cavity, but the lower forms an attached base of greater or less breadth, which is continuous in its entire circum. forence with the parietal decidua." (Cyclopædia of Anat. and Phys. "Uterus and Appendages," p. 655).

"According to the observations of Rolin, Robin, and Kilian, from the fourth and fifth month onwards, the decidua begins to been the character of energetic life, which, up to that period, it had exhibited, and becomes atrophied and less firmly adherent to the uterine walls; while between it and the muscular parieties there appears a new formation of decidua, at first soft and delicate, but which gradually acquires the peculiar characteristics of that

<sup>.</sup> Fig. 7 .- Decidual cups. After Montgomery.

membrane. This layer is not thrown off at birth nor dispersed in the lochia, but remains attached to the inner uterine surface and forms the foundation of a new mucous membrane" (Op. cit. . p. 658).

THE IMPREGNATED OVUM.—We have already described (p. 2.) the characters of the unimpregnated ovum, when about to leave the Graafian follicle—the vitelline membrane or zona pellucida, containing the yelk, within which are the germinal vesicle and germinal spot. Conception produces remarkable changes in the ovum while passing through the Fallopian tube. The yelk-sac becomes opaque, is covered by an albuminous fluid, and is thus ultimately converted into the Villous Chorion: the yelk shrinks so as to leave a space between it and the yelk-sac; the germinal vesicle and germinal spot disappear: and the yelk itself undergoes a change, by which a new membrane is ultimately formed. Bischoff has noticed in the rabbit an energetic rotatory movement in the whole yelk within the sac, attributed by him to the vibratile cilia. The yelk divides into two, four, eight spherical bodies, which multiply by subdivisions in a geometric progression (i. e. by dichotomous segmentation) until they form a distinct " granular coating surrounding a transparent fluid, the remains of the yelk (fig. 8). This is the Germinal Membrane, from which the embryo is formed. It is resolved into two coats or layers;

Fig. 8.\*









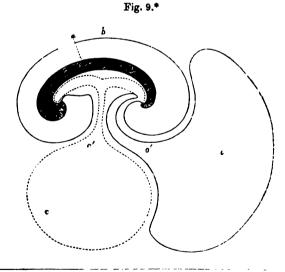


the outer or tegumentary layer is called the serous coat; the inner or visceral layer is called the mucous coat. The former completely envelopes the embryo and its organs, is reflected on

<sup>\*</sup> Fig. 8. Cleavage of the yelk. From Kirkes' Physiology.

itself, and forms a sac named the amnion. When the abde (previously an open cavity) is closed, the amnion encloses umbilical cord, and passes from it over the inner surface of chorion. Thus the ovum presents two membranes; the vi chorion, the bond of union with the uterus; and the am which contains a fluid especially for its protection—the feetal The former grows with the increasing uterus: the latter enli with the development of the feetus. In early ova, therefore amnion is very much smaller than the chorion; and a dis space is left between them. This space is occupied with a culate structure (Velpeau), in which rest the umbilical vesicle the allantois.

The Umbilical Vesicle is formed from the inner or mucous and is connected by a duct directly with the intestines. It tains the yelk, which can pass for some time freely into intestines: vessels pass from the fœtus along the duct, and ra



\* Fig. 9. Diagram of umbilical vesicle and allantois. a, Dorsal structur embryo. b, Amnion. c, Yelk-sac or umbilical vesicle. c', Vitelline du pedicle of umbilical vesicle. o, Allantois. o', Urachus.

ment the vesicle—the omphalo-mesenteric vessels. When the mentar connection between the fœtus and uterus is established, the duct is closed; the sac shrinks; and, lastly, the omphalo-menteric vessels disappear.

The Allantois is a vesicle which grows from the caudal exmity of the feetus; it is highly vascular, and is supplied by
the umbilical vessels. It increases rapidly, meets the chorion,
and forms the element of the placenta. The arrangement of the
time capillaries, which are crowded over the surface of this
there it is inferred that its office is similar. But whatever its
times, they are of short continuance; because, as soon as the
middle vessels are conducted by it to the chorion, the allantois
thinks, and nothing remains but the urachus in connection with
the bladder. It is very difficult to detect this vesicle in early
wa; but a diagram from Müller will give an idea of the relative
tention of the umbilical vesicle and allantois (fig. 9).



Fig. 10. Ovum between nineteenth and twentieth days, described by ose, magnified four diameters. 1, Decidua. 2, Chorion. 3, Amnion. Embilical vesicle. 12, Allantois.

Descriptions of Ova at early period of Gestation.—Mr. Wharton Jones, (Phil. Trans. 1837, p. 339.) and Dr. Allen Thomson (Edin. Med. and Sur. Journal, No. 140.) have described ovas early as the twentieth day, before the allantois joined the chorion and Coste has figured one between the sixteenth and twentieth days, magnified to the extent of four diameters (fig. 10).

In this figure, the decidua and chorion have been removed: the embryo is enveloped in the amnion; the umbilical vesice projects from the middle of the body; and the allantois, situated nearer to the posterior extremity of the embryo, is beginning to apply itself to the chorion.

Wagner has also described and figured an ovum about the twenty-first day from conception (fig. 11).

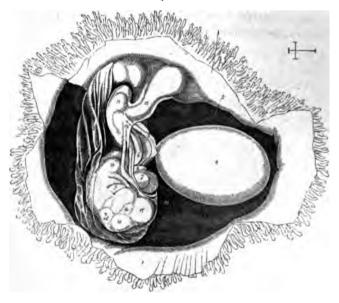


Fig. 11.\*

<sup>\*</sup> Fig. 11. Ovum and embryo, described by Wagner. (The natural size is shewn at the side). 1, Chorion opened. 2, Space between chorion and amnion. 3, Amnion. 4, Umbilical vesicle. 5, Intestine. 6, Corpus Wolffi-



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se are examples of the earliest ova detected by the educated distinguished physiologists. As the stages of development

Fig. 12.\*



are advanced, the several parts are more easily seen. Wagner has given a very perfect example of an ovum at the fifth week, shewing the decidua, decidua reflexa, chorion, amnion, and umbilical vesicle, but not the allantois (fig. 12).

At a rather later period, Dr. Sharpey has prepared an ovum, in which the omphalo-mesenteric vessels are beautifully shewn, although the vesicle itself is greatly reduced; proving that these vessels are

t to disappear (plate I.).

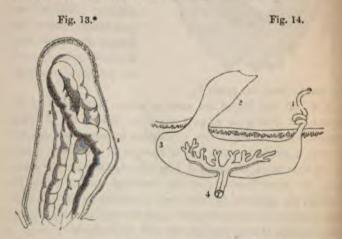
is far, the life of the embryo seems independent of the . It derives its support from the yelk of the umbilical , where a very active circulation is going on; and this s is probably aided by the changes in the blood, caused circulation through the lung-like capillaries of the allan-As soon, however, as the umbilical vessels reach the 1, the allantois spreads over it, forming an inner layer of embrane—the endochorion; and the capillaries of the umvessels at once pass into the villi of the chorion.

PLACENTA is thus formed. The chorion has been de-

<sup>7,</sup> Heart. 8, Liver. 9, Inferior maxilla. 10, Anterior extremity. 11, r extremity. 12, Allantoia. 13, 14, Points where amnion is reflected cephalic and caudal extremities. 15, Rudiments of eye. 16, Ear. bral hemispheres. 18, Corpora quadrigemina.

<sup>. 12.</sup> Aborted ovum and embryo of five weeks, described by Wagner.

scribed as being formed from the yelk-sac and the albuminous coating it receives on the passage of the ovum through the Fallopian tube. When in the uterus, it is covered with villi; those in contact with the decidua serotina dip into it and become attached; as the ovum increases they are crowded more and more together, while the remainder separate from each other until ultimately they disappear. These villi are hollow blind tubes, surrounded on every side by the dissepiments of the decidua. When the capillaries of the allantois reach the chorion, they pass into these villi, so that each villus contains a single artery and vein. Their course within the villus is extremely tortuous, like twisted threads forming terminal loops: these Dr. John Reid supposed to be the mode of communication of the artery and vein, their junction forming a single coil. Weber and Goodsir describe capillaries from these vessels, which make several convoluted loops before uniting.



The accompanying illustrations will render the minute structure of the placenta more intelligible.

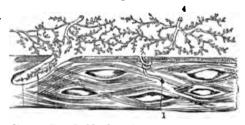
<sup>\*</sup> Fig. 13. The extremity of a villus, taken from a recent placenta, in which the vessels were still filled with blood, magnified 200 diameters, after Weber. 1, Loop filled. 2, Loop empty. 3, Margin of pellucid villus.

If a single tust of the placenta be so unfolded as to expose its several thread-like branches, and one of these be placed under a microscope, two trunks—arterial and venous—will be observed, surrounded by other smaller tusts, which are the ultimate terminations of these vessels.

Single arterial branches arise from the minute trunk, and, without subdividing, twist into several coils like tangled threads, and then each directly enters into the vein, being, as it were, a continuation of the same vessel.

"The vascular villi of the fœtus dip into wide blood-vessels which arise from the uterine system, and which permeate the whole uterine portion of the placenta: the looped capillaries of the fœtus being thus surrounded and bathed, as it were, in the maternal blood. The ends of the villi are formed by the inosculating loops of minute arteries and veins of the fœtus, which, however, have the distinguishing character that the same vessel makes several turns from one loop into another before it enters the nearest venous trunk." (Müller's Physiology, p. 1605.)

Fig. 15.

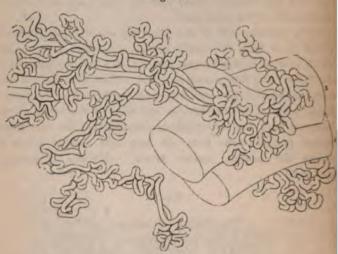


"According to Dr. Reid, the blood sent from the mother to the placenta is poured by the curling uterine arteries (1, Figs. 14, 15) into a large sac (3) formed by the inner coat of the vascular system of the mother, which is intersected in many thousand different directions by the placental tufts (4) projecting into it like fringes, and pushing its thin wall ('margin of the lucid villus') before them in the form of sheaths, which closely envelope both the trunk and each individual branch composing these trunks. From this sac the maternal blood is returned by

the utero-placental veins (2) without having been extravasated, or without having left her own system of vessels." (Ibid. p. 1606.)

These villi and their contained vessels collectively form lobes or cotyledons: the cotyledons united form the placenta. The convoluted character of these capillaries is retained throughout, and in the mature placenta may still be observed (fig. 16).





These tufts of fœtal vessels and their sheaths are surrounded on every side by the dissepiments of the decidua serotina, which ultimately forms the cavernous structure alluded to, and constitutes the maternal portion of the placenta (fig. 14). The uterine arteries pour the blood into this structure, whence it is returned to the uterine veins; thus the fœtal vessels are, as it were, bathed in the maternal blood; but there is no direct contact—the villous sheath on the fœtal side, the membrane of the spongy portion on the maternal, are interposed. Whatever change in the blood takes place, is effected through the medium

<sup>\*</sup> Fig 16. Villi of the feetal portion of a mature human placenta magnified 100 diameters. After E. H. Weber. 1, The artery. 2, The vein.

of these membranes (fig. 15). Professor Goodsir has shewn more markedy the manner in which this is accomplished. The amenity of a placental villus being highly magnified, he has becovered two sets of nucleated cells, having a distinct space

Fig. 17.\*



between them; one set, the internal, belong to the chorion; the other to the lining membrane of the vascular system of the mother. Hence the inference, that the materials secreted by the maternal range of cells are poured into this space, from which they are absorbed by the feetal nucleated cells (fig. 17).

It is an interesting question, whether any effect similar to endosmose and exosmose is the result; which, if true, would explain a difficulty with regard to the feetal circulation. How is this carried on? The power of the feetal heart, weak and immature, is scarcely sufficient to propel the blood, not only through the vessels of the feetus, but along the cord to the thousand vessels of the feetal villi. A power of attraction is necesary to draw the feetal blood towards the placenta; and whether this power exists, while this process of secretion and absorption is going forward, seems a question full of interest.

The Circulation in the Placenta is carried on equally throughout the organ by the maternal and foetal vessels; the maternal blood passing through the cavernous or spongy structure as far a the foetal surface of the placenta, while the foetal vessels accumulate on the uterine parietes; so that, at the full term of pregnancy, the placenta may be equally injected from the foetal and the uterine side. Some years ago, we had the opportunity of proving this. The uterus of a woman who died in child-birth, before the placenta was detached, had been sent to us; and through the kindness of Dr. Sharpey, a very careful injection

<sup>\*</sup>Fig. 17. Extremity of a placental villus, after Goodsir. a. Lining membrane. c. Vascelar system of mother. b, c. External cells of villus. d. Space between maternal and feetal portions of villus. c. Internal membrane of villus. f. Internal cells. g. Loop of nubilical vessels.

was made. The maternal side was injected by colourless state the fortal with vermilion. The colourless spaces of the space structure extended to the fortal surface, and were distinct observed between the vermilion which seemed to fill the was placenta. (Plate II).

The allantois reaches the chorion about the fourth week. Is outline of the placenta, marked by the clustering villi, may be observed at the second month. In the third month, the placen is more distinct, and thus continues until birth; previously which, however, the elements of a new mucous membrane seeing formed. Rolin, Robin, and Kilian, date the commencement of this membrane so early as the fourth month; and if a it should be sufficiently advanced by the seventh month to shift the uterine parietes when the placenta is separated, and to read its artificial separation attended with less risk. Previously, however, to this time, the attempt to remove the after-birth manally is not only very difficult, but dangerous; both because it the hemorrhage which must follow, and of the inflammation the may be excited.

The Situation of the Placenta varies. It has been generally supposed, since the time of Dr. Hunter, to have its seat near the Fallopian tube: and when it was found near or at the mouth the womb, the cases were considered rare and rather puzzling exceptions to a general rule; but later researches at the timed birth have proved that this supposed position is by no means constant. Some years ago, Mr. Hugh Carmichael of Dublin having made several post mortem examinations of women dving in their confinements, found the placenta invariably low down a the posterior wall of the uterus. In all cases of delivery at the Lying-in Hospital to which he was attached, great care was taken not to rupture the membrane further than necessary for the expulsion of the child; the placenta and membranes were afterwards replaced as nearly as possible in the position occupied while in the womb, and the placenta was always found at the lower part of the sac, which seemed to confirm his observation (Dub. Journal, vol. xiv., p. 445.) This view also receives support from auscultation: the placental murmur is heard much pper segment of the gravid uterus. The most usual seat of the placenta, according to Mr. Carmichael, is low down on the posterior wall of the uterus: sometimes it is applied to the interior wall, and the sound is distinctly heard under the stethocope; and, as is well known, it may be found close to or directly over the mouth of the womb.

THE EMBRYO is developed from the germinal membrane (p. 21). A round opaque spot is observed at one part of the surface the aggregation of nuclei, which soon form themselves into a ring (area vasculosa) surrounding a clear space (area pellucida), n the centre of which the first trace of the embryo is observed.

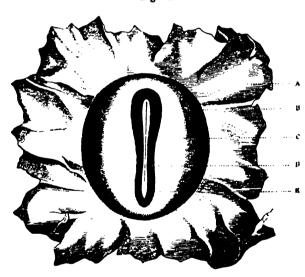


Fig. 18.\*

The origin of the nervous centre—the spinal cord—is first found between the serous and mucous layers; and, as it is deve-

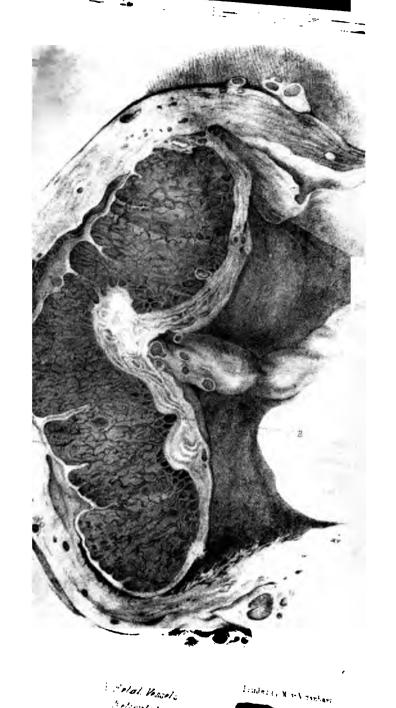
<sup>\*</sup> Fig. 18. Germinal membrane of bitch's ovum, after Bischoff. A. Germinal membrane and rudiments of embryo. B. Area vasculosa. c. Area pellucida. D. Laminæ dorsales. B. Primitive groove.

loped, bends at both extremities, drawing down the serous layer with it. The vascular system has its origin from the area vasculosa; an intermediate vascular layer being formed between the serous and mucous laminæ. The serous layer is the basis for the formation of integuments, muscle, bone, &c. The mucous layer forms the visceral organs; the nervous and vascular systems lying between the layers.

At the end of the first month the embryo is sufficiently developed to observe its several parts. The spinal column is strongly curved, the large head bending in towards the centre; the cauda extremity is prolonged and doubled on itself. The centre is boat-shaped cavity, in which the elements of the visceral organ are exposed; the heart and liver lying in the same cavity. This cavity is bounded superiorly by three visceral arches, of which the first forms the face; lower down may be noticed the element of the superior extremity, and close to the caudal end the tuber cle which forms the inferior extremity (fig. 19). At this period



\* Fig. 19. Human embryo of fourth week (Kirkes). 2, Chorion. 3, Amnior 4, Umbilical vesicle. 7, Heart. 8, Liver. 9, Visceral arch destined to for lower jaw. 10, Rudiment of upper limb. 11, Rudiment of lower limb. 1: Umbilical cord. 15, Eye. 16, Ear. 17, Cerebral hemispheres. 18, Corpor quadrigemina.



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corpora quadrigemina forms the chief portion of the cerebral
the cerebrum not being developed. The face is unformed;
the cree are quite lateral; and in place of nose and mouth, a tricular space exists.

At the second month, the head and face are more formed; the central cavity closes in, remaining open at the inferior part only, and called umbilicus; the extremities are more developed; and the caudal extremity is less prolonged. (See Dr. Sharpey's plate, p. 25.)





At the third month, the outline of the embryo is perfected. The head and face are complete; the abdomen is closed; the curemities are formed; and internally the thorax is divided from abdomen. The umbilicus becomes a circular opening, whence a cord passes to the placenta; the vessels in the cord still run table, not having as yet assumed their spiral course. The stion of this opening is a little above the pubes: as the above increases, it gradually rises, until, at the full term of pation, it is a central point, equidistant from the head and the extremities. At this period, the anmion is more closely

<sup>20.—</sup>Focius of three months. Vessels of cord parallel. After Moreau.

applied to the chorion, so that the ovum is resolved into the placenta, membranes, and fœtus. The latter is about two and a half inches in length, the head is globular and large—more that one fourth of the whole.

The growth of the embryo is now more rapid. At the fourtamonth it is above four inches in length.

At the fifth month the fœtus is about twelve inches long. Bones and muscles are more rapidly developed; the latter begin to give evidence of their power, causing the first sensations of motion in the abdomen like the trickling of water. The skin is advancing towards completion; the epidermis is formed; the hair and nails begin to appear; and the whole body is covered with down. Fat is as yet very scanty.

At the sixth month, fat is more developed; the wrinkles disappear from the face; the body is rounder; but the head is still disproportionately large. The child born prematurely is capable of breathing, but cannot sustain respiration.

At the seventh month, the fœtus can support respiration; but the fat is not in sufficient quantity to maintain its temperature; hence the importance of artificial aid for this purpose. The skin is red from the transparency of the cuticle, over which is formed a new substance, composed of epithelial nucleated laminæ, and called "vernix caseosa." The fœtus is now about sixteen inches in length, and weighs about two pounds.

At the eighth month, the membrana pupillaris, or membrane which has hitherto closed the pupil, disappears, and the epidermic sealing of the eyelids begin to loosen.

At the ninth month, intra-uterine life is completed. Fat is abundantly formed; the hair is increased; the nails are complete; the down has disappeared. The umbilicus is now exactly at the centre of the body. The child is about twenty inches in length, and weighs about seven pounds; but this is often exceeded.

## LECTURE III.

## THE GRAVID UTERUS.

with the development of the fœtus. The body is first red, the anterior wall becoming equally round with the for, giving the uterus a more perfectly pyriform shape; undus forms no part of the cavity until about the sixth or h week, when it slightly rises above the openings of the ian tubes. Wagner has given a section of the gravid about this time, which represents accurately the ovum s relation to the uterus (fig. 21, p. 36.)

e cervix is closed with a plug of lymph; the fundus is ning to rise above the Fallopian tubes; and the several of the ovum—the decidua vera; decidua reflexa; chorion; m; umbilical vesicle; and the vascular allantois spreading he chorion—are distinctly observed.

es, its form changes; the lower portion above the cervix ds, so that it becomes more spherical. This occurs about impletion of the third month.

ring the fourth month, the uterus completely occupies the cavity, and at the termination of this period rises slightly it, entering the abdomen; this may occur without any kable change taking place, but sometimes the uterus resuddenly from the brim of the pelvis, and, the pressure quickly taken off the great venous trunks, syncope follows. It is this symptom has been seized upon as a sign to date the tion of pregnancy. So also, if the uterus be retroverted, its

increased size, filling the pelvis, presses on the bladder rectum so much, as to produce those distressing symptoms retention of urine and constipation, which first attracted atte to this displacement.



<sup>\*</sup> Fig. 21.—Perpendicular section of uterus with fully formed 1, Plug of lymph in cervix uteri, 2, Opening of the Fallopian to Decidua vera. 4, Cavity of uterus, nearly filled by ovum. 5, Decidua r 6, Chorion. 7, Decidua serotina. 8, Allantois and situation of future pla 9, Amnion. 10, Umbilical vesicle. 11, Umbilical cord.

: fifth month, the womb, still retaining its globular form, dway between the pubes and umbilicus. Its length, is rather increased by the expansion of the fundus. e sixth month, it ascends to the level of the umbilicus; ssing upon it, causes it to project. The shape is becoman ellipse; the fundus forming the larger curve. seventh month, it is midway between the umbilicus and cartilage, which it nearly reaches at the eighth month. ht months and a half, the uterus has attained its highest and presses forwards against the abdominal parietes, e expanded to their fullest extent. The intestines lie ly, and in such a confined space are pressed strongly



the diaphragm; hence the distressin respiration at this time. Changes, however, now take place preparatory to parturition. The womb is gradually drawn down again towards the pelvis; the distress of respiration is relieved; the abdomen is less prominent; hence the old expression "flattening of the belly," used as an indication that labour is approaching. The womb now forms a more perfect ellipse; the lower and smaller curve being formed either by the expanded cervix, or by that portion of the uterus immediately above it (fig. 22.)

<sup>\*</sup> Fig. 22.—Gravid uterus at the ninth month.

The Cervix Uteri may or may not form part of the gravid uterine cavity. The changes which take place in it are of a different character from those which occur in the other parts of the organ. In the first month of gestation, it becomes more vascular, softer, and thicker than the virgin cervix; the orifice is rounder and somewhat enlarged—the little finger might be passed within it. The canal is enlarged; and the penniform rugæ are more developed. A large quantity of tough gelatinous mucus is poured out, which completely fills up and closes the cavity of the cervix. During pregnancy, the os and cervix both gradually increase in size; the cervix becomes shorter, and sometimes even apparently disappears towards the conclusion of gestation. This seeming disappearance, however, is caused by its increasing breadth; the neck, as it were, being spread out transversely and losing its former character; its cavity, however, remains in its integrity, and forms no part of the uterine cavity. Dr. A. Farre has well shewn this in a vertical section of the gravid cervix uteri of a woman, who died of phthisis in the eighth month of pregnancy.

There are some exceptional cases, however, where the cervix is completely expanded before delivery, so that the head of the child may be felt resting upon it, just as when, in the progress of labour, the cervix is gradually unfolded. Thus, in the commencement of labour, the cervix may be felt very much shortened and stretched out; the finger may pass into its cavity, but no part of the child can be felt: at a later period the cervix is unfolded; and then the cavity becomes only part of the general uterine cavity, and the presenting part and membranes are easily detected.

Positions of the Gravid Uterus.—In its ascent, the uterus is generally inclined to the right side of the abdomen; sometimes, however, to the left. Its inclination forwards depends very much upon the strength of the parietes of the abdomen and on the axis of the brim of the pelvis. When the muscular walls are strong, as in first pregnancies, the uterus is not allowed to project much; this is remarkably the case with women in a state of nature, as among some of the Indian tribes and other aborigines.

Nako, with strong girls, the form may be so little altered, that parancy is concealed to the time of delivery. On the other and, when the abdominal parietes are weakened by many pregnancies, the womb projects very much; and if, in addition to this, the brim of the pelvis look forwards, and the uterus be compressed by the corset, it may be driven directly downwards over the pubes.

THE SPECIAL COATS AND TISSUES of the uterus undergo a remarkable development during its rapid increase of size; an increase in nine months of from two inches to more than twelve in its longitudinal axis.

The Peritoneum was supposed by Dr. Wm. Hunter to be only unfolded; the broad ligaments being separated, and applied to the increasing uterus: but this opinion has since been proved incorrect, because the broad ligaments are found in the gravid uterus at the full term very nearly of the same size as in the unimpregnated womb, the only alteration being that of position, the also being more closely applied in the former than the latter case. The growth of the peritoneum keeps pace with that of the uterus by the addition of new matter, so that it is rather increased than otherwise in thickness. It is united to the uterus by a strong fibrous tissue, which gives the womb a powerful support during its expansion, and when uterine action commences. This seems proved by some forms of rupture of the uterus, when the peritoneum and these fibres give way, causing transverse fissures, as if it were cut with a knife.

The Middle or Proper Coat of the Uterus, in the virgin, requires the microscope and the scientific eye to detect embryonic muscular fibres; now, however, the stimulus of conception causes such a rapid growth that muscular fibres are perfectly obvious. The elementary fibres increase from seven to eleven times their length, and are nearly five times as wide. In addition to these, a new formation of muscular fibres takes place, chiefly within the first half of the period of gestation; and from this time forwards, the muscular coat is strongly marked, the fibre-cells being of great magnitude; they are thrown into numerous folds, and seem stristed, with the nuclei prolonged. The fibres are formed into layers

united by fibrous tissue more densely and firmly on the inner and outer surfaces. Towards the centre, they are more separable; the fibrous tissue being looser and everywhere traversed by blood-vessels. "These laminæ are superimposed the one upon the other, in layers parallel with the two surfaces of the uterine walls; but neither the laminæ themselves nor the fibres composing them can be said to take any definite course." "This," Dr. Farre observes, " is especially the case in the middle or vascular layer." (Cyclopædia of Anat. and Phys. " Uterus," p. 651). On the external and internal surfaces, the course of the fibres is more easily traced; those described by Sir Charles Bell as converging towards the round ligaments, and those surrounding the Fallopian tubes. "But nothing like a continuous arrangement of muscular fibres in the form of circular or longitudinal bands surrounding or investing the organ can anywhere be demonstrated by the aid of the microscope" (Dr. Farre, loc. cit.). In connection with the management of the first stage of labour, these external and internal muscles will be described, and circular fibres will be alluded to; but they must not be considered as being equally defined. The extremely irregular course which the laminæ of fibres take everywhere, perforated by blood-vessels, give a section of the uterine parietes the appearance of a sponge.

The Blood-vessels of the uterus are greatly increased in length and breadth; the arteries pursuing a spiral course, the veins appearing like flattened channels between the muscular parietes. They will be more particularly described in connection with hæmorrhage.

The Nerves of the Uterus have been the subject of a very heated controversy, which has much contributed to obscure our knowledge of the subject. It will be necessary, therefore, to examine the questions raised, and to separate, if possible, fact from assertion. The chief supply of nerves is derived from the hypogastric and inferior aortic plexuses; some arise in the spermatic plexus, and go principally to the ovaries; a few fibres spring from the sacral plexus. The ganglionic nerves, consisting of gelatinous fibre, greatly predominate; the tubular fibres of the cerebro-spinal system are also found, but in small quantity.

Proposed by Snow Beck has made a beautiful dissection of these nerves, which deservedly obtained the approval of the Royal Society.

Are the nerves enlarged like the arteries and veins, in the gravid uterus? This is not a new question. Dr. Wm. Hunter thought that they must be enlarged; but he could not prove it or satisfy his brother John, who denied that they were so. Tiedemann, in his plates of the nervous system, gives those of the gravid uterus; but they are not enlarged, on the contrary, are rather scanty. These authorities governed the opinion of the profession until 1842, when Dr. Lee presented to the Royal Society an "Appendix to a paper on the Nervous Ganglia of the Uterus, with a Further Account of the Nervous Structures of that Organ," in which he describes enlarged nerves forming subperitoneal plexuses and ganglia on the anterior and posterior surfaces; in fact, shewing a similar increase in the nerves to that which is observed in the arteries and veins. The consistency of such a discovery with probability, led to the adoption of Dr. Lee's dissections by the profession; and many of the most eminent saw and admired them. Dr. Snow Beck was at the same time engaged in making the beautiful preparation of the nerves of the unimpregnated uterus to which we have alluded; and Dr. Lee's discovery induced him to make another preparation of the nerves of the gravid uterus, to shew by contrast their enlargement and the new plexuses spoken of. In proceeding with his task, difficulties began to surround him; he could find no subperitoneal plexuses; his eye, well accustomed to nervous tissue, sought for nothing else; the neurilemma therefore, and every portion of fibrous structure surrounding the nerves lying between the peritoneum and the uterus were removed. The result was that the nerves, thus exposed, were found not enlarged, but just as John Hunter first stated. Dr. Snow Beck's enquiries on this question were sent to the Royal Society, together with his account of the nerves of the non-gravid uterus.

A storm of controversy increasing almost to a hurricane, sprang up, which displaced the President from his seat, and greatly disturbed the whole profession. A mass of evidence was collected in favour of Dr. Lee's views; and great indignation was

however, remained unaltered. Hirschfeld, Robin, and Jobert de Lamballe, state that there is no actual increase of nerve-sub-Franz Kilian and Kölliker, advance only a very few paces in favour of Dr. Lee. Kölliker from the analogy of the lower animals, considers that the nerve-fibres are like the muscular fibres, embryonic in the unimpregnated uterus; that during pregnancy they are increased in length; but that any increase of thickness is due to the growth of the fibrous investing sheaththe neurilemma. All admit that the fibrous sheath is increased in thickness; none, except Dr. Lee, assert that the nerves are enlarged. The sheath of the nerve is not the nerve itself; consisting of fibrous tissue, it gives the nerve that support and protection which are especially necessary in the enlarging uterus; but it does not convey nerve-force-it is not nerve, strictly so called; and hence, while Dr. Snow Beck's dissections receive this support, the source of error in Dr. Lee's dissections is easily understood. If the neurilemma be considered as nerve, it is certainly enlarged; and it is quite possible to dissect ganglia very like the neurilemma from the fibrous structure beneath the peritoneum, as Dr. Beck asserts has been done with regard to the anterior and posterior subperitoneal ganglia. But if this be not granted, then it is clear no change takes place; and the very small supply of nerve to an organ so rapidly increasing becomes in itself a question of difficulty.

It is to be regretted, that a question so full of interest should resolve itself into a kind of personal dispute, to be determined by a majority. It cannot be so decided. It is only by the repeated and careful dissections of such men as the Hunters, Tiedemann, Hirschfeld, Beck, and Dr. Robert Lee himself, that the truth can be ascertained; and, if one dissection fail, a second may succeed. This would be of far more value than a host of evidence collected from mere lookers-on. Thus far the enlargement of these nerves has not been proved, but the future enquirer may yet succeed in establishing it. THE ACTION OF THE UTERUS at the time of labour has been

much discussed. Where the nervous supply is so scanty, is

the action of the uterus, as John Hunter said, "in itself," in a crain degree independent of the nerves? Or is it completely and their control? And, if so, what portion or portions of the arrows system govern it? To give a satisfactory reply to these peries is extremely difficult; because, in most instances, we can say draw, from experiments on the lower animals, conclusions which are consequently liable to error.

This action may be considered in two points of view; the peristaltic action, dependent upon the ganglionic nerves; the telex action, arising from the spinal centre. The former may trist without the latter, as is evidenced in cases of post mortem saturition, and in complete paralysis of the lower half of the lody. Dr. A. Farre relates a most interesting case to illustrate his. "A woman was attacked with paraplegia in the eighth much of pregnancy. She had neither sensation nor motion in my part below the umbilious. No reflex movement whatever and be produced by tickling the soles of the feet; the fæces posed involuntarily; and the urine was drawn off daily. About the ninth month, her medical attendant, when about to pass the satheter, found a full grown fætus in the bed, dead. The uterus ess contracted, and the placenta in the vagina." (Cyclop. of Anat. A Physiol. " Uterus," p. 676.) The reflex spinal system, lowerer, exercises a marked influence over uterine contractions. Irritation of the mamma, of the vagina, of the os uteri, of the avity of the uterus, will excite uterine action. Distention of the birider or of the rectum; emotions, as shocks, the fear of pains, the presence of the obstetric attendant, will suspend its contrac-Both systems are intimately bound up together; yet it s necessary to separate them so as not to confound the influence of one with the other. Peristaltic action depends upon the cructure of the organ in which it is excited. In the non-striated reluntary muscular fibre of the uterus, it commences at a point, spreads outwardly, excites other centres to action, and thus moves slowly from point to point; until the whole there is engaged in contraction. There is thus a gradual slow contraction, followed by a relaxation of a similar character. This power exists in the muscular structure itself, and does not depend

upon the supply of nerve. "It need not excite surprise," observes Dr. Farre, "if these centres of excitement are few, and the nerves of the gravid uterus consequently not numerous; for a more abundant supply of nerve-force and more rapidly recurring contractions would be prejudicial to labour, by bringing the uterine walls more constantly and violently into contact with the fætus, and by driving out the blood passing through them so rapidly as to cause dangerous regurgitation, or so frequently as to cause fœtal asphyxia, through too constant interruption of the placental circulation." (Op. cit. p. 674.) It is necessary that these vermicular contractions should not occur irregularly, or depend merely on casual irritation, A certain controlling power is required to regulate the order of contraction, and to bring it into harmony with the system generally. Such seems to be the office of the reflex nerves: they may excite or control the peristaltic action, regulate the rhythm of its return, and render, by the aid of the respiratory muscles, the contractions more frequent, strong, and powerful; or they may suspend the action altogether.

The description given by Wigand of these contractions, as commencing from the os tincæ, proceeding upwards towards the fundus uteri, and again returning towards the mouth of the uterus, will be found questioned when describing the first stage of labour. Practically, the order of contraction is from above downwards. In order to procure an efficient contraction of the uterus, it must commence at the fundus; contractions from below upwards retard labour, retain the placenta, and lead to those contractions called "hour-glass." But, in considering the order of contraction as a physiological question, it may be quite true that the os uteri is influenced before the fundus. The child may act against the mouth of the womb, just in the same way as food against the pylorus, by first exciting in the os uteri the reflex action which is instantly conveyed to the fundus; but, for all practical purposes, it must be considered that contraction takes place from above downwards, and that irregular contractions take place when this order is reversed. A slow peristaltic action from below upwards cannot cause the liquor amnii to press down upon the os uteri, which is the first effect of a contraction. It is far more probable, that the effect on the os uteri is a reflex action, the irritation of the os tincæ communicated to the fundus more rapidly than through peristaltic action; and that the centre of action so excited is at the fundus, and not at the os uteri.

### LECTURE IV.

SYMPTOMS AND SIGNS OF PREGNANCY.

THE symptoms and signs of pregnancy have generally been treated as a medico-legal question; and, in the most valuable essays on the subject, the signs have been divided, according to their importance, in determining the existence of pregnancy. This division is useful in assisting the practitioner to decide a doubtful and perhaps important question; but it has led authors to dwell too exclusively on the forensic signs of pregnancy, and to give comparatively little attention to the symptoms of gestation where there is no doubt of its existence. The consideration of those signs and symptoms, as evidence of the phenomena which take place in the uterus during the development of the fœtus, is equally interesting and important to the accoucheur; and the manner in which the constitution is influenced by the new function, if attentively studied, will enable him to understand and to obviate many deranged actions that are now loosely classed as the diseases of pregnancy.

PERIODS OF PREGNANCY.—The symptoms and signs of pregnancy may be considered in detail, as they successively arise in the progress of gestation: the symptoms chiefly indicating the effects produced on the vital functions; the signs, those local changes caused by the increasing weight and size of the uterus, and by the development of the fœtus. For the purpose of examination, the whole term of gestation may be divided into three periods.

The first period is from conception to the termination of the fourth month. At this time, the embryo is in its rudimentary state, gradually advancing to the completion of its organisation and outward form; the chorion is resolving itself into placenta

and membranes; and the uterus increases until it occupies the whole pelvic cavity and emerges into the abdomen.

The second period is the interval between the fourth and the middle of the ninth month. The uterus, as an abdominal organ, enlarges to its greatest size; the fœtus increases rapidly in its development, the placenta is fully formed; and the membranes have lost their distinct character, forming, as it were, a single laminated membrane.

The third period is that preliminary to parturition. The uterus is descending towards the pelvis; the matured child is abundantly supplied with fat, and is prepared at any time to leave its temporary resting-place. The symptoms which present themselves are those which mark the approach of parturition, and are called "the premonitory signs of labour."

The symptoms and signs may be classified as constitutional and local; the former are evidences of the disturbance caused in several functions; the latter, of the changes going forward in the

FIRST PERIOD.—The symptoms and signs of this period are the following: -

Constitutional Symptoms. Rigor. Syncope. Slight lividity of the countenance. Slight febrile paroxysm. Blood altered.

Local Signs. Fulness and softness of os uteri. Colour of vagina. Vaginal pulse. Menses suppressed.

Nausea-Altered appetite. Irritability of bladder. of rectum. Nervous system. Altered temper. Headache (Beccaria's.) Shooting pains of mamma. Neuralgic pains in face. " in ear. in teeth.

Salivation. Urine. The skin.

In the first period, the Symptoms of Constitutional Disturbance are strongly marked.

The Circulation gives instant evidence that conception has taken place; the blood is directed towards the uterus from the surface to the centre; hence a sign sometimes occurs—the rigor coits of the older authors. Syncope may follow conception, and become its earliest symptom. A remarkable alteration in the countenance is frequently observed; the features are drawn, and a slight lividity is noticed about the eyes and the angles of the mouth; the cheek is paler than usual. The face presents an expression of languor, and has very slightly the appearance observed in the commencement of a febrile paroxysm. The pulse sometimes is more frequent; and the blood is altered in its appearance and properties.

The Blood of pregnant women usually presents a buffy coat; but this is not constant, nor does its appearance indicate any essential change in the elements of the blood. Simon analysed the blood of a pregnant woman presenting a buffy coat. He states "that it differs in no respect from normal blood." It was composed of—

Water .	4				806.898
Solid const	ituents	8			193.102
Fibrine					2.102
Fat .					3.040
Albumen					72-200
Hæmatoglobulin					96.900
Extractive	matte	r an	d salts	160	7.980

The amount of solid constituents is somewhat below the standard of normal blood, and the quantity of fat is increased. The proportion of hæmatoglobulin to albumen is normal. Becquerel and Rodier analysed the blood of nine pregnant women, one at

# Analysis of the Blood of nine Pregnant

Elements of the Blood.	Mean.	Maxima
Density of defibrinated		
blood	1051-5	1055-1
Density of serum	170,000,000	1026.8
Water		
Fibrin		4.0
Albumen	66.1	68.8
Blood-corpuscles	111.8	127.1
Extractive matter and	111111111111111111111111111111111111111	100
salts	6.6	8.7
Fat		2:519
Consisting of serolin.	variable	0.108
Phosphorised fat	0.646	0.863
Cholesterin	0.061	0.225
Saponified fat		1.323
The salts in 1000 Chloride of sodium Other soluble salts Phosphates	3·2 2·4	3·9 2·8 0·690
Iron	5.7.7.5	0.490
11011 ,	0 773	0.430

From these analyses they conclude that pregna

increased; and the lips of the os uteri are more rounded and spal. The most remarkable effect is an alteration in the colour of the vagina, which assumes somewhat a lavender hue. Jacquemer first noticed this appearance, in the course of his examinations with the speculum, in order to detect disease among the degraded classes in Paris. At first its cause was a mystery; but it being frequently observed, and taken in connexion with the history of the patient, pregnancy, in all these cases, was found to exist. Parent Du Chatelet confirmed these observations; and they contidered this peculiar colour a diagnostic sign of conception.

Osiander has pointed out another sign, which he considers to be equally diagnostic—the vaginal pulse. The arteries in the ragina are increased in size; the circulation is more active; and the pulsations are more distinct. It is questionable, however, whether this is so certain a sign. Similar effects are sometimes the result of disease.

The Cessation of the Menses is a sign which has been most constantly observed, and is, by general consent, considered to be a strong evidence of pregnancy. It is not, however, so certain a proof as is supposed, although one which must always suggest the probable existence of gestation. The popular belief, that the cessation of the menses is a proof of pregnancy, is a sufficient evidence of the constancy with which this effect follows conception. The fact, also, that the cavity of the uterus, from which this discharge flows, undergoes a complete alteration on its surface, and that the cervix uteri is closed by conception, strongly confirms the popular opinion. The cessation of the menses may therefore be considered a highly presumptive proof of pregnancy; but it is only when it is put forward as a positive sign, that there is reason to doubt whether the proof be unequivocal. Diseases of the uterus, and still more of the ovaries, may interrupt the catamenia. This discharge is often suspended for months, in cases where pregnancy is not the cause. Such cases are rendered still more embarrassing, if accompanied by those symptoms of constitutional irritation that so often attend pregnancy. Morning sickness, enlargement of the abdomen, shooting pains in the mammæ, and even the secretion of milk,

have been observed to follow the cessation of the menses, where pregnancy did not exist, but where ovarian irritation was the cause. To hazard too confident an opinion as to the certainty of pregnancy on so many apparent proofs, might be most unfortunate. The cessation of the menses cannot then be considered an unequivocal sign of pregnancy, because it may be the result of other causes.

Another question, not less difficult to answer, is, whether pregnancy may exist and the menses continue? This has been denied by Denman, Dr. J. Hamilton, and Dr. R. Lee, who "believes, from the anatomy of the gravid uterus, and other circumstances, that regular menstruation never takes place during pregnancy."-(Lee's Lectures, p. 152). Cases illustrative of the continuance of menstruation during gestation, however, have been quoted by Mauriceau, Puzos, Johnstone, Dewees, Montgomery, E. Rigby, Churchill, and others: too strong a testimony to doubt its occurrence. A few patients have come under my own observation, with whom a periodical discharge, resembling the catamenia, took place during pregnancy; in one case to the time of quickening, when it ceased; in another to the eighth month; in a third throughout the whole period of pregnancy. Dewees and E. Rigby both allude to the cessation of menstruation in the middle of pregnancy. According to their observations, it ceases about the fourth month.

Conception may occur without any previous menstrual discharge. A remarkable instance came under our notice, in which the only appearance of the kind was observed during pregnancy. A woman, delicate-looking but healthy, aged 23, was pregnant of her second child, in November, 1843. She then, for the first time, perceived a discharge resembling the menses. Her first child was born in 1841. "She had never been poorly" previously to or during that pregnancy, nor had ever observed any such appearance, until her second pregnancy, in Nov., 1843. Cases in which the catamenia occur only during pregnancy are related by Deventer, Dewees, Baudelocque, and Kennedy. Other instances have been mentioned by Johnstone, Blundell, and Montgomery, in which the menses have been very copious immediately after

Will Black

acception, and have then ceased. We cannot therefore place such dependence on the cessation of the menses as a positive sign of pregnancy; although the constancy of their absence, when conception has taken place, renders it an evidence of much weight, when taken in connection with the other signs.

The Nervous System gives equal evidence of disturbance with the circulation. The sympathies of the stomach, the brain, the bladder, and the rectum, show the influence of pregnancy on the reflex nerves; while the different forms of neuralgic pains, as headache, toothache, face-ache, &c., prove the irritation of the antient perves.

Morning Sickness, the conventional term for the nausea which follows conception, is a constant symptom of pregnancy, and is equally popular with the cessation of the menses. As its name implies, it occurs in the morning when the patient first rises; it may be slight, and only spoil her breakfast; and may amount to actual vomiting. It generally passes away in about half-an-hour; but in some constitutions it returns during the day, and even at night. It may follow immediately on conception, but more usually occurs about the fourth or sixth week, and generally dissprears about the fourth month. The cause of this sickness returning every morning as soon as the patient rises, has been supposed to be the sudden change in the position of the uterus: there is no doubt that this may sometimes excite the stomach, but the sickness often takes place before the patient rises; and we know that the recumbent position, quite independent of pregnancy, will allay irritation of the stomach. In sea-sickness, where the stomach sympathises with the brain disturbed by an unaccustomed motion, vomiting often does not take place until the person makes an effort to rise. When the stomach is irritated, position will produce the same effect in the one case as in the other. There is an obvious reason why this sickness should secur more frequently in the morning than at any other time. The nerves are, as it were, then first roused from their slumber, and are alive to impressions which produce no effect during sleep; hence the irritation of the stomach, like the irritation of the bladder, is felt as soon as the patient wakes from sleep.

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The Appetite is often altered. It is sometimes increased; the woman eats and drinks heartily, even of food which previously she could not taste. In other cases the appetite is capricious; and the woman rejects food which formerly she desired, and craves for what before may have excited disgust. These varieties are more frequent when the irritation is excessive, and becomes one of the diseases of pregnancy.

Irritation of the Bladder is frequently an early and very troublesome sign of pregnancy. Micturition becomes occasionally very annoying; the cause of this may not be at first understood, but other symptoms follow, which prove it an early evidence of pregnancy. In certain cases, this irritability of the bladder is found to depend upon the symphysis pubis, which becomes extremely painful in certain positions, showing a tendency to loosening of the articulation.

Diarrhæa is also in some cases an early evidence of conception.

The opposite condition, however, both of bladder and of rectum sometimes occurs. Pregnancy may cause constipation and retention of urine.

The Temper of pregnant women is sometimes altered: the mildest disposition may become peevish and irritable. With some, a most unaccountable anxiety and dread afford them a very certain proof of their condition. Dr. Montgomery mentions an instance in which the temper was improved. He says, in his excellent work on the Signs of Pregnancy: "A gentleman lately informed me, that, being afflicted with a step-mother naturally more disposed to the fortiter in re than the suaviter in modo, he and all the household learned, from experience, to hail with joyful anticipations the lady's pregnancy, as a period when clouds and storm were exchanged for sunshine and quietness."

Rest is frequently disturbed. The woman gets but little sleep, and that little uneasy and troubled by unpleasant dreams. Nevertheless she seems nothing the worse; neither in her appearance nor manner is there anything to indicate a sleepless night. This symptom disappears as gestation advances. All these evidences of constitutional disturbance affecting the nervous

poem are most obvious when the attention is first directed to

Hendriche proves the influence of conception on the sentient serves. It is frequently an early symptom of pregnancy; so much so, as to lead Dr. A. Hamilton to assign the cessation of the mass as its cause. It is generally referred to the temples or second the forehead; but some years ago Beccaria mentioned a pecaliar headache, which he considered diagnostic of pregnancy. It describes it as an acute pulsating pain in the occipital region: the pain is accompanied with giddiness on the least motion of the lead, and with difficulty in supporting the light; it comes on midenly, and is succeeded by a disposition to sleep. After leping some minutes, the patient is said to awake free from pain, and with a strong desire for food. (Archives Générales de Maleine, Tome xxiv, p. 443.)

Neurobjic pains are often distressing. Shooting pains in the same frequent; and in women who are hysterical, the connecteristic pains under the left breast are renewed by pregacy. Pains in the ear and face sometimes cause distress; but most frequent source of misery is—

Toothache. Some caution is necessary when such a symptom preents itself, especially if there be a decayed tooth. The prient may fly for relief to the usual remedy—extraction; this, however, does not afford the customary benefit. The pain may be moved for a short time, but it soon attacks another tooth, and thus renders extraction useless. Besides this, there is some risk in removing a tooth from a pregnant woman, if she should be mader much apprehension of a painful operation. The excitement caused by fear might end in serious consequences, if it indicated abortion. As a general rule, therefore, extraction is not strictable in such cases.

The Secretions are sometimes preternaturally excited.

One of the most remarkable of the effects of pregnancy is Substitution. Some pregnant women have been as completely salinated as if they had been under the influence of mercury; and lence the danger, lest the whole of this irritation should be substituted to the medical attendant, if he should have given his patient mercury in any form. Medical men have been blamed where no such medicine has been administered. How much more difficult the defence, if blue pill had been prescribed as an aperient! It is necessary to know, therefore, that pregnancy alone may excite salivation; and also to distinguish between it and mercurial ptyalism.

The sympathetic salivation of pregnancy is not accompanied by any unusual redness or sponginess of the gums, by any peculiar fector or metallic taste in the mouth, or by any great viscidity of the saliva. The saliva is simply increased; the excessive flow continues for a certain time, and then disappears without leaving any trace of previous irritation. In a few cases, salivation has continued to the end of pregnancy; but generally it ceases at the fourth or fifth month.

The Urine is influenced by gestation; and the changes produced in it have been for a long time the subject of observation. In 1486, Savonarola gave a minute description of its appearance. "Up to about the sixth month, the urine is clear and of a pale citron color, with a cloud on its surface; and about the middle of the fluid a deposit like carded wool; but, as pregnancy advances towards its close, the urine becomes redder and turbid when stirred." M. Nauche has revived these observations. He says: "By allowing the urine of pregnant women or of nurses to stand for some time, in thirty or forty hours a deposit takes place of white flaky pulverulent grumous matter, being the caseum or peculiar principle of milk found in the breasts during gestation." He describes also a white mass that separates after the urine has stood for some time; partly rising to the surface, where it forms a somewhat tough pilous membrane interspersed with glistening crystals, and partly sinking to the bottom, forming a cream-like precipitate. Nauche considered this as a positive sign of pregnancy, which Dr. Montgomery in some degree confirmed: "I have myself" (he observes) "tried it" (this test) "in several instances; and the result of my trials has been this. In some instances, no opinion could be formed as to whether the peculiar deposit existed or not, on account of the deep colour and turbid condition of the urine; but in cases in which the fluid was clear

md pregnancy existing, the peculiar deposit was observed in many instance. Its appearance would be best described by aying that it looks as if a little milk had been thrown into the trine, and, having sunk through, partly reached the bottom, while a part remained suspended in the form of a white semi-transparent filmy cloud." (Signs and Symptoms of Pregnancy, 1st edit., p. 158.)

Eguisier has also published his observations on the subject. He remarks that the urine of a pregnant woman examined in the morning is generally of a pale yellow colour and slightly milky; it first reddens and then turns blue turnsol paper, as in ordinary urine. Exposed to the contact of air, a cloudiness is observed from the first day, resembling fine wool; from the first also a white matter is deposited. These phenomena are not, however, constant. From the second to the sixth day small opaque bodies are seen rising from the bottom to the surface of the fluid, and then collecting together until they form a layer covering the whole surface: this is Kyesteine. It is sufficiently consistent to be raised from off the fluid. It is whitish, opaline, slightly granular, and resembles much a layer of fat which swims on the surface of fat broth when cool. Examined by the microscope, it appears a gelatinous mass of indeterminate form. When it is old, cubic crystals are sometimes detected. (Lancette Française, Feb. 1839, p. 36.)

Dr. Golding Bird made experiments on the urine of twentyseven pregnant women, and arrived at the following conclusions:

1. That certain organic matters, closely resembling if not
identical with caseous matter mixed with abundance of earthy
phosphates in a crystallized state, are eliminated from the blood
during pregnancy, and, if not otherwise removed or taken up,
are finally thrown out by the kidneys. 2. That certain accidental circumstances, especially connected with those morbid
actions in which the kidney is called upon to perform a compensating function for the skin, as indicated by the abundance of
azotised matter in the form of amorphous lithate of ammonia in
the urine, interfere temporarily with the development of caseous
matter, as they do in checking the cutaneous and other secretions.

3. That, taken in connection with other symptoms, as the formation of a dark areola round the nipple, the cessation of menstruation, and abdominal enlargement, the formation of a caseous pellicle in the urine affords a very valuable corroborative indication of the existence of pregnancy." (Guy's Hospital Reports. No. X.)

The most extensive series of observations were made by the late Dr. Kane of Philadelphia. He concludes that kyesteine does not appear sooner than thirty hours or later that eight days; that on its first appearance it forms a scarcely perceptible membrane, which gradually becomes firmer and thicker, and after a time breaks up, the fragments sinking to the bottom; that a kyesteine-like membrane may also appear in the urine of persons with phthisis, arthritis, metastatic abscess, vesical catarrh, &c., but that it differs from true kyesteine both in the manner of its formation and of its destruction. It appears later than true kyesteine; and, having once appeared, develops itself more rapidly and possesses less tenacity. The urine is neutral or ammoniacal on the appearance of kyesteine, which under the microscope appears as an amorphous matter consisting of minute opaque corpuscles, intermingled with crystals of ammoniaco-magnesian phosphate.

Dr. Kane likewise ascertained that kyesteine occurs not only during pregnancy, but also during lactation; especially when the secretion of milk is at all checked.

Simon examined the urine during the second, third, fourth, and fifth months of pregnancy, but did not invariably detect kyesteine. In those cases where it was found, he thus describes the appearances. "The urine on emission was clear yellow, faintly acid, and not affected either by nitric or acetic acid, or by heat. Usually, in about twenty-four hours, the whole urine became slightly turbid, the acid reaction disappeared, a white viscid sediment was deposited, and soon afterwards the surface of the fluid became covered with a pellicle, at first extremely delicate, but after from twelve to twenty-four hours becoming tough, thick, opaque, and with a glistening aspect, in consequence of the light reflected from numerous minute crystals of ammoniacomagnesian phosphate with which it was studded. On examining

this pellicle in its early state under the microscope, it appeared (when magnified 300 times) to consist of an amorphous matter exposed of minute opaque points, such as are presented by sediments of phosphate of lime or urate of ammonia; except that, in the latter, the individual particles are usually darker, more dearly defined, and larger than in kyesteine. The whole field of vision was likewise bestrewed with numerous vibriones in active motion, and crystals of ammoniaco-magnesian phosphate. When the pellicle became thicker, precisely similar phenomena were observed, but the vibriones were supplanted by a considerable number of monads; on the addition of acetic acid the crystals disappeared, while the amorphous matter remained unaffected "(Animal Chemistry, vol. ii. p. 330).

Dr. Elliot of New York describes the appearances in 153 cases of prognancy, to which we would especially refer you. (New York Journal of Medicine, Sept. 1856).

Having given a sufficient body of evidence on the appearances which the urine of pregnant women presents, we shall conclude with the observations of Dr. Parkes on the nature of kyesteine.

It was supposed that this substance was in part composed of casein derived from the mammary gland; but this does not impear to be the case. The so-called kyesteine is not of constant or determined composition, but consists of triple phosphates, derived from decomposition of the urea, bladder-mucus, fat, infusoria, and fungus-growths, mixed with the organic matter of the vaginal discharges. Very similar appearances are found less frequently in the urine of anæmic non-pregnant women, and sematimes in the urine of men." (Composition of the Urine, p. 106).

Execumptive, but by no means an unequivocal proof. It may be absent when pregnancy exists, and present, as in the urine of anomic women, when there is no conception. It must, however, be looked upon with suspicion; and, if supported by other signs, be taken as a tolerably certain proof of pregnancy.

The Skin undergoes some remarkable alterations; but they are confined to special cases, and may be considered as indica-

tions of a disordered action. The features are more drawn than usual; the angles of the mouth and lower eyelids are darker; but sometimes distinct blotches are observed upon the face, and that character which is known as scorbutic occasionally occurs. Slight jaundice is met with in some cases; and the face often loses that fine delicacy of complexion that was so attractive.

In this, the first period of pregnancy, there are no unequivocal signs; but those which approach to certainty and may be considered as diagnostic are, the cessation of the menses; the colour of the vagina; and the peculiar character of the urine. In the second period, the principal signs are collected. The constitutional symptoms subside; and those depending upon the increasing size of the uterus and the development of the fœtus are more manifest.

## LECTURE V.

SYMPTOMS AND SIGNS OF PREGNANCY (continued).

Second Period.—The symptoms and signs of this period, or that from the fourth to the middle of the tenth month, are:—

Constitutional.

Mammary sympathies. Syncope. Local.

Changes in the cervix uteri.
Shape of the abdomen.
Cracks and marks in the abdomen.
Active motions of the child.
Passive motions.
Signs by auscultation.

Mammary Sympathies is the term by which Dr. Montgomery expresses the changes produced by pregnancy on the mammary gland. These commence in the first period, and gradually

mease until in this, the second, they become more defined. heriously to the fourth month the breasts swell up, until a by of tension is observed by the woman; but this increase of bould not be confounded with a temporary fulness dependapon other causes. Any excitant which produces irritation of womb may cause the breasts to enlarge. Thus marriage my lead to this effect without resulting in conception; a rapid stresse of fat might take place about the gland, and deceive the ractitioner. The enlargement from pregnancy is different; the tamma increase gradually; and, as the gland enlarges, its duracters become more obvious. It is firm; tender on pressure; maular on its surface; and somewhat conical in shape. The Engument is tense, mottled, and traversed by numerous large tens. In some cases, the tension is so great that the skin yields is fissured, and silvery lines, the result of these cracks, trathe surface. Dr. Montgomery relates a remarkable case, which these marks afforded him decisive evidence of a pregwey which had been strongly denied (Signs of Pregnancy, let Edit. p. 50).

The Arcola undergoes alterations, which Dr. Montgomery has midered to be very indicative of pregnancy. The change in scolour-the dark circle-has long been looked upon as a cerin sign; although doubted, and with justice, by some authori-The areola presents other characters that are worthy of mation. The disk seems swollen, as if cedematous; it is bedewed with moisture collected about the base of the The which is larger and more prominent. A number of enpapillæ are observed on the surface; to these Dr. Montparticular attention, because he considered them Egnestic of pregnancy. During the progress of the third and months, he states " that the changes in the areola are in perfected, or nearly so; and then it presents the following directers: - A circle around the nipple, whose colour varies in mairy according to the particular complexion of the individual, bing usually much darker in persons with black hair, dark eyes, in mllow skin, than in those of fair hair, light-coloured eyes, al delicate complexion. The extent of this circle varies in diameter from an inch to an inch and half, and increases in me persons as pregnancy advances, as does also the depth of color I" (Dr. Montgomery) "have seen the areola at the time of labor almost black, and upwards of three inches in diameter, is young woman of very dark hair and complexion; while it another instance, lately seen by the writer, its breadth around the base of the nipple did not at any time of gestation amount a quarter of an inch, and at first was not more than an eight this circle, however, narrow as it was, was studded at nearly regula intervals with the glandular tubercles, which were not unlike string of beads...... .. In the centre of the coloured circk nipple is observed, partaking of the altered colour of the put and appearing turgid and prominent; while the surface of areola, especially that part of it which lies more immediate around the base of the nipple, is studded over and rendered equal by the prominence of the glandular follicles, which, varing in number from twelve to twenty, project from the sixteen to the eighth of an inch. Lastly, the integument covering the part appears turgescent, softer, and more moist than that which surrounds it; while on both there are to be observed at this period, especially in women of dark hair and eyes, numerous round spots or small mottled patches of a whitish colour scartered over the outer part of the areola, and for an inch or more all around, presenting an appearance as if the colour had been discharged by a shower of drops falling on the parts." pp. 61, 2.)

The areola as a sign of pregnancy, when presenting all these appearances, may be looked upon with confidence; but still exceptions occasionally arise, which prevents its adoption as an unequivocal test. The change of colour is uncertain; frequently no change, at least none that would excite attention, takes place. When the colour is altered, it remains for a certain time after pregnancy, especially in women who are nursing; and sometimes it is permanent: therefore, in any case of pseudo-pregnancy, this sign might be observed, although the result of a former gestation.

The enlargement of the glandular follicles has been observed in

of functional derangement of the uterus and ovaries. We are noticed the increase of size in a woman with amenorrhea at tympanitis, whose state excited suspicion, but who proved be pregnant. Since then, similar cases have presented emselves, having these follicles enlarged; in one of which a rescent fluid could be squeezed from the nipple. The moisture the surface of the areola and its adematous appearance we have bur seen, except in cases of pregnancy; but a medical friend sormed us "that he had a patient with whom the menses the irregular, and, while so, the areola is bedewed with moishre: but when pregnant, it is not so." In 1848, Professor Supson " showed to the Edinburgh Obstetrical Society a woman even months gone with child, whose breasts gave no indication thatever of her pregnant state." This case he contrasted with other: the lady had never been pregnant, but was suffering bin great uterine irritation; "the areola was turgid, and of a lark brown colour; the papillæ were numerous and much clarged; and the superficial veins very large and prominent. Edinburgh Monthly Journal, March, 1848, p. 639.) These cooptions are sufficient to prevent the appearances of the areola but being taken as a certain test; nevertheless, when taken in searction with other evidences, the condition of this part gives tong confirmation.

The presence of Milk in the Breasts is not an infallible sign of regardy. Cases have been quoted by Baudelocque, Belloc, and Fodere, in which mere irritation of the mammary gland excited the lettel secretion independently of pregnancy. One of the most argular is related by Mr. George Semple. "Mrs. Breward, of Empson Green, near Idle, aged forty-nine, was mother of nine didren, the youngest of whom is twelve years old. She lost a implter-in-law about a year ago, who died in a fortnight after pring birth to her first child. On her death, Mrs. B. took targe of the infant, a little puny sickly baby. She was so will and uneasy that Mrs. B., after several sleepless nights, the induced to permit the child to take the nipple into its mouth. In the course of from thirty to sixty hours she felt very unwell; be breast became extremely painful, considerably increased in

size; and soon after, to her utter astonishment, milk was secrete and poured forth in the same abundance as on former occasion on the birth of her own children. The child is now a year old is a fine thriving healthy girl, and only a few days ago I saw her eagerly engaged in obtaining an apparently abundant supply of healthy nourishment from the same fountain, which nearly twenty years ago poured forth its resources for the support of its father." (North of England Medical and Surgical Journal, vol. i., p. 230.)

Syncope has been already alluded to (p. 35), and its cause explained. In the majority of cases, it is incomplete; rather a sensation of faintness than actual fainting. The patient, previously quite well, feels suddenly faint and giddy; she soon recovers, but the fact is noted. Sometimes complete syncope takes place.

The Local Signs of Gestation are becoming now more prominent. The enlarging uterus causes an alteration in the form of the cervix, and also in the shape of the abdomen.

One of the earliest symptoms of gestation in the first period is caused by the descent of the uterus, and the nearer approach of the cervix uteri to the vulva. The uterus, however, soon rises again; and the cervix is drawn upwards. So, also, the irritation caused in the intestines by the function going forward excites flatus, and the abdomen is enlarged far beyond the increase of the uterus; but this also soon subsides, and the shape of the abdomen afterwards depends upon the size and form of the uterus.

The Changes in the Neck of the Uterus have been much dwelt upon. The dense elastic cellular structure in the early months become softer and fuller, the mouth of the uterus also rounder; but no alteration in the length of the cervix takes place until about the end of the fifth month, when it seems to diminish: this goes on progressively from month to month, until the cervix seems to disappear. We have already given proofs (p. 38) that this diminution is more apparent than real; that it arises from the cervix being very much stretched transversely, and therefore diminished in length, but not because the cavity of the cervix is unfolded to form a part of the uterine cavity. Exceptions

Moreor occasionally are found, in which the cervix is so unand thinned that the head of the child can be felt resting it, so that it must form a portion of the general cavity.

The Shape of the Abdomen begins to change at the end of the whomouth, when the uterus rises into this cavity. As it must towards the umbilicus, it chiefly occupies the right side, the prominent, and may be confounded with tumours in the timen. When it passes and presses forward the umbilicus, prominence of the abdomen is more remarkable, and the tiliar oval form of the uterine tumour is obvious. These factors become still more distinct as the organ approaches the forme cartilage. Deviations from them occasionally arise. prominence of the abdomen may be greater or less, according to strength of the abdominal parietes and the inclination of the inclination of the pelvis. Its oval form may be altered by twins, by the presence of an ovarian cyst which may complicate mancy.

backs and fissures leaving, as in the mamma, white silvery over the abdomen, are frequently observed in those who been pregnant more than once. A dark line over the linea is also occasionally noticed.

he Active Motions of the Child are generally noticed about completion of the fifth month. They have been confounded, the name of "quickening," with the sensation caused by rising of the womb into the abdomen: hence they are by Denman as early as the fourth month; but the diar feel, accompanied by faintness, which is perceived at the in month, is different from that produced by the motions of child. Its muscular power is then very feeble; an abune of the liquor amnii is interposed; and consequently its ons can hardly be felt: it is only when its size is sufficiently ased and its muscular power is more developed, that its ements are noticed, and this is seldom earlier than the fifth th. The sensation has been compared, at first, to the ing of water, but presently becomes more plain. The age of air in the intestines, the peristaltic action of the uterus will imitate these motions. The former is a frequent cause of error with those who are the subject of uterine irritation. If a lady of a certain age marry, and the abdomen swell in consequence, the impulse of flatus sufficiently imitates the quickening of the child to persuade her she is pregnant, and it requires some firmness on the part of the practitioner to convince her that she is not. The peristaltic action of the uterus has also been sometimes mistaken for the motions of the child, especially when excitants have been used to stimulate them. The practitioner, placing his ice-cold hand on the abdomen, may excite only this action of the uterus, and not the child. After the fifth month, the child's motions become more obvious, and cannot well be mistaken. The term "quickening" is strictly applicable to these motions, because originally, the child was not supposed to be alive (quick) until it could move.

The Passive Motions of the Child are those which may be excited in a dead child. The French suggested the possibility of making the fœtus move in the fluid medium containing it, and under the name of ballottement proposed a method of percussing the uterus so as to produce this effect. The patient was placed standing upright; the finger was passed up the vagina to the anterior wall of the cervix uteri, and kept firmly there; with the opposite hand the fundus was pressed down, so that the child might be forced on the cervix. As soon as it was felt, the finger at the cervix was struck against it, so that it rose and again descended on the finger. The sensation of a solid body floating freely in a fluid medium can only be caused by a child in the womb; and hence it was adopted as a sign of pregnancy. In these countries, no practitioner could place his patient in the position for examination adopted by the French. She must lie on the side, but with the body sufficiently raised to allow the child to gravitate towards the cervix. In this position, it is by no means easy to produce the intended effect; the cervix is frequently too high, and, even when felt, too dense to admit the impulse of the child to be felt. The pressure on the fundus can have no effect on the child; so that this mode of examination is both difficult and uncertain, and cannot be employed before the sixth month, when the weight of the child is sufficiently increased to press towards the cervix.

Association was first applied by Mayor of Geneva to the parid uterus. He detected the sounds of the fœtal heart in 1818. Afterwards, Kergaradec followed up his research, and excibed the placental murmur. Since then, E. Kennedy, I. Naegele, Hohl, and others, have given it their attention, and shished the results of their inquiries. These two sounds, the second murmur, and the sound of the fœtal heart, are described, at become valuable as evidences not only of pregnancy, but of the fife of the child.

The Placental Murmur is a rushing sound—a hum; it has been copared to the distant sound of the sea—to the vibrations of a callic string—to water forced from a syringe into water at rest and, lastly, to the sound of varicose aneurism. It has been alled the placental sound (bruit placentaire—Kergaradec); the tero-placental sound (Hohl); the uterine sound (F. Naegele); coording to the views of its situation held by these different terrers.

The utero-placental sound is not generally heard before the buth month of pregnancy. E. Kennedy states that he heard it a carly as the tenth and eleventh weeks of gestation; but this has at leen confirmed by others. It is only when the uterus becomes a abdominal organ—that is, after the fourth month—that the can be heard; because then only can the stethoscope be gold directly to the uterus. The usual seat of the sound is wither the right or the left iliac region, just above Poupart's gament. It may be heard in the neighbourhood of the umbiand sometimes, but rarely, at the fundus uteri. There are of pregnancy where it is absent. The sound is very variable airs intensity; at one time a clear aneurismal murmur, at anobra deep distant hum. The sound is sometimes clear on both of the abdomen, but generally so only on one side. Its But Frequent situation is the inguinal region; next the lumbar; ieast, the neighbourhood of the umbilicus. The murmur ar is either direct or indirect. The direct sound is clear, loud, timing, sometimes almost shrill and piping. The indirect lis a deep sonorous murmur, or faint rushing sound. The is heard at the anterior wall of the uterus, and is rarely

met with. The latter is the more usual sound heard in one or or both inguinal regions.

The source and cause of the sound were attributed by Monad, Kergaradec, De Leus, and the earliest observers, to the placenta; hence it was called "bruit placentaire." This was soon, however, controverted, especially by Velpeau, who considered the placents to be composed solely of fætal vessels: he denied an utero-placental circulation, and consequently the possibility of the seat of this sound being the placenta. Velpeau inclines to the opinion of Haus, that it arises from the pressure of the uterus on the iliac vessels: 1. Because it is not heard till the uterus rises from the pelvis, and may be supposed to press on the iliac arteries. 2. It is heard in the inguinal regions, and often equally at opposite sides. 3. It is heard after delivery. 4. A perfectly similar sound is heard in cases of tumors in the abdomen pressing on the iliac vessels. Velpeau's reasons only go to prove that the uterus may by its size compress the iliac vessels, and produce a "bruit," in the same way as a fibrous tumour. Such probably occurred in the case quoted by Kennedy, where a soufflet was heard forty-four hours after delivery; but instances of this kind are not sufficient to prove that this is the true cause of the sound. Velpeau hesitates on this point, and admits "that very often this sound appears to approach the ear so closely, to occupy a space so different from that which the pelvic arteries would seem to indicate, that one cannot hesitate to reject in spite of oneself (so to speak) the theory of Haus." (Traité des Accouchemens, Vol. i. p. 202.)

F. Naegele asserts that the sound exists in the walls of the uterus; because it is only heard after the fourth month, when the uterus is in the abdomen, and, as the uterus rises, the sound accompanies it. (F. Naegele, on Auscultation. West, p. 18.) He considers that the vascular system of the uterus is the seat of this sound; and that the changes which the uterine vessels undergo are its cause. He denies "that it exists in every portion of the placenta, and hence adopts the term 'Uterine Sound;" because.

1. It may be usually detected in both inguinal regions, from one of which it will be heard extending forwards and upwards with increased intensity. 2. It is almost always heard through a space

considerably larger than the portion of the uterus to which the pacenta is attached. (Op. cit. p. 20). The sound being heard nest frequently in the course of Poupart's ligament, leads T. Naegele to suppose that it is produced by the dilated uterine atteries, just as they leave the broad ligaments to enter the womb; and he accounts for the different degrees of intensity at opposite described by the supposition that the placenta is attached to the side of increased intensity, the vessels being larger and more numerous than on the opposite side. (Op. cit. p. 25.)

Without entering too minutely into this discussion, some opinion may be formed from admitted facts. 1. The sound is not confined to Poupart's ligament, but has been heard at the upper part of the uterus. We have heard it distinctly at the anterior surface of the uterus. This could not occur if the sound depended either upon the iliac vessels, or on the arteries just enterby the womb. 2. The sound is not only admitted to vary in its position, but is sometimes absent. 3. It is heard on opposite with unequal intensity, and is often detected on one side only. These facts can only be explained by assuming that the placenta, ar the portion of the uterus in contact with it, is the seat of the sound. If so: is it in the walls of the uterus alone, in the placenta alone, or in both combined? It seems to us that this may be descripted by a fair examination of the sound itself. It has been well compared to the bruit of a varicose aneurism, which it closely resembles. In varicose aneurism, a number of arteries your their blood into dilated veins, containing blood having a much slower motion; the sound seems to arise from the impulse the more rapid arterial current against the sides of the dilated reals. If this be a correct explanation of the cause of the send in varicose aneurism, it will serve to explain the same and in the gravid uterus; because there is a perfect analogy between the utero-placental circulation and that in a varicose Innumerable tortuous arteries pour their contents to a structure (the maternal placenta) composed of large cells etrating every portion of the placenta. This structure has a compared to a rete of colossal capillaries; it contains a large mtity of blood moving, with a much slower motion, into the regularine veins. There is, therefore, the impulse of the arterial

current against the slower moving blood and the sides of the cellular structure, sufficient to cause a vibration in the whole placenta. This vibration may be communicated to the stethoscope directly, if it be applied over the anterior wall of the uterus, and the placenta be attached there. In this case the sound is clear, and sometimes even whistling. Or it may be heard indirectly, through the medium of the liquor amnii; and, according to the position of the placenta, sometimes plainer on the left side than on the right, or the reverse; and if the placenta be placed low down near the os uteri, the sound may not be heard at all. When heard indirectly, it is soft, diffused, indistinct, and often lost, when any thing (the child for instance) interrupts the vibration. If this assumption be admitted, it is sufficient to explain the phenomena. The sound varies with the position of the placenta; and is most frequently heard in the inguinal regions, because the placenta is most usually attached low down to the posterior wall of the uterus, sometimes to the left, sometimes to the right side. Hence, also, the sound may be heard on one side only; the fœtus interrupting the vibration on the opposite side, where the feetal heart is generally perceived. The sound extends over a wider surface than the placenta, because it is diffused by the liquor Hohl's view, therefore, that the sound is caused by the utero-placental circulation, appears correct.

One objection, and a strong one, requires consideration; that in fibrous tumours, moles, etc., an uterine murmur is often heard exactly the same as in pregnancy. It is not exactly the same, but is much louder; and it is either limited to a very circumscribed space, showing its seat to be in some single compressed artery, or is heard generally over the uterus, when its vessels are irregularly pressed upon by the new growth. The practised ear will at once distinguish between these sounds. A very remarkable case came under our notice, which will illustrate this. In 1852, a case of doubtful pregnancy was sent up from the country for our opinion. The woman had hitherto maintained a most respectable character; but the abdomen began to enlarge, the menses had ceased, and, as she held a public appointment, it was thought right to have a medical opinion. The gentleman

A large and distinct tumour, like the gravid uterus, supplied the left side and partly the right of the abdomen; a loud trive murmur was heard in the left inguinal region; and, on maining per vaginam, the cervix uteri was quite thin, and expended over what seemed very like the feetal head. The loudness of the uterine murmur raised a doubt. A closer examination was made; and these appearances were found to be caused by a firm, partly osseous, fibrous tumour.

The Fostal Heart is generally heard about the same time as the utero-placental sound, when the uterus is in the abdomen. The sound is very feeble at first, but becomes more and more distinct as pregnancy advances. The pulsations have been aptly compared to the ticking of a watch heard through a pillow; their number varies from eighty to a hundred and sixty; the average rate is about a hundred and forty. The sound is most commonly heard in the iliac or inguinal region, opposite to the placental murmur. It is sometimes audible in the lumbar regions, at the fundus uteri, and in the neighbourhood of the umbilicus. There is reason to suspect malposition of the child when the sound is central. In three cases in which the shoulder presented, we heard the feetal heart close to the umbilicus. If the sound be equally audible and distinct at opposite sides of the uterus, m may indicate twins. The rate of pulsation at each side should be counted, and compared with the maternal pulse. The fætal hearts of twins are never synchronous; if therefore, a difference be observed, and neither pulsation corresponds with the mother's pulse, it is a proof of twins.

The feetal pulsations may not be heard, although the child is living. In the most favourable cases, it is by no means easy of detection; and the remark of Laennec is perfectly true: "L'étude de ces phenomènes demande incomparablement plus d'attention que celle de tous ceux que presentent les maladies de la poirrine." The child may be small; the heart weak; or the liquer amnii abundant. If the child lie at the back of the uterus, the seund is lost; the vibrations being diffused and reflected by the liquer amnii. If the child lie anteriorly, these pulsations

will be heard; thus the position of the woman lying on her back may prevent the sound from being heard, and it may be at once detected by a change of position. The sound is heard most plainly in cases of labour when the waters have escaped, and the head of the child is fixed in the pelvis. The most inexperienced may learn the double beat in such cases; and this knowledge can be applied afterwards to those which are more doubtful.

As a sign of pregnancy, the sound of the fætal heart is the only unequivocal evidence we have; and therefore is the most important. It is valuable, also, in being consistent with the strictest delicacy, and rendering unnecessary any search after other signs which are not so completely within those limits.

In order to determine pregnancy by auscultation, the bowels should be previously relieved, and the urine drawn off. The accumulation of air in the intestines, and the distention of the bladder, sometimes obscure the sound. The woman should be placed in a recumbent position, so as to relax as much as possible the abdominal muscles; a sheet should be thrown over the person, and nothing interposed between it and the abdomen. A perfect silence in the room should be preserved; and the examination should be commenced in the inguinal region, proceeding from below upwards, until the situation of the sound is discovered.

At this, the middle period of pregnancy, the leading signs are, then, the changes in the areola; the active motions of the child (quickening); the changes in the cervix uteri; and, with the uteroplacental murmur, the pulsations of the fatal heart.

When it is required to give an opinion in doubtful cases of pregnancy, much caution is necessary. It would be well to observe the following rules.

- Never depend upon a single sign, except the sound of the fœtal heart; but rather seek for several as a confirmation of that first observed.
- If there be no evidence for the affirmative, do not hastily conclude negatively; rather let a second examination be made after a certain interval.
- 3. Set no value on the evidence of the party in question. In doubtful cases, there are many inducements to deceive the prac-

titioner in order to disguise an existing pregnancy, as well as to marince him of a conception which has no existence except in imagination of one anxious to be a mother.

4. In all cases where the opinion is of importance, the examishould be made in the presence of a third party.

THED PERIOD .- The symptoms and signs of this period, or the month of gestation, are-

Constitutional. wed febrile irritation.

bawed irritability of bladder and restam.

Continuation or diarrhoea. Redlessness.

lugular pains in the abdomen.

Men cessation of anxiety.

Local.

Falling of the abdomen.

Great sense of weight. Difficulty in walking.

Sciatic pains.

Varicose veins.

Increased vaginal discharge - the

"Show."

The third period of pregnancy is characterised by symptoms which are premonitory to parturition.

The Uterus descends towards the pelvis; the abdomen is less forment; and the woman feels a weight about the loins which takes exercise distressing to her.

Pressure-Effects.-The nerves are more pressed upon causing a the ling sensation round the hips and down the legs; this someamounts to pain followed by numbness. There are cases in which the sacral plexus has been so compressed, that the sciatic whe has been paralysed, and lameness has been caused.

The veins suffer equal pressure. The feet and ancles are realen; the veins of the legs are distended, and often, from mested pregnancy, become varicose. In the neighbourhood of be rectum, the inconvenience is greatest; because the foundaha of hamorrhoids is too frequently thus laid, and once formed by increase and become more distressing with every succesme pregnancy.

The Sympathetic Irritation of the neighbouring organs is renewed. The bladder is very irritable; and micturition is frequent and blesome. The action of the rectum may be excited, and cause Ara; or it may be suspended, producing constipation. The is more usual; and, when it occurs, the woman is often quite unconscious of any inconvenience; the rectum may be interested on the uterus, and cause premature spasmodic computions. These false labour-pains are always most distressing a cause the patient much unnecessary agony.

The Vaginal Discharge is increased; and a thick glairy man flows abundantly for two or three weeks before parturition. It has been sometimes mistaken by primiparse for the show. It some instances, the vagina is dry, and no discharge appears the time of labour; and even then not until the first stage considerably advanced.

The "Shore" is a sanguineous discharge that finally colours mucous secretion. It is the last sign of pregnancy; the first parturition.

#### LECTURE VI.

## DURATION OF PREGNANCY.

The Duration of Pregnancy is so intimately related to imptant forensic questions, that it has always been the subject anxious discussion. The rights of property, the happiness a mother, and the character of a husband, may be determined the limits within which a legitimate child may be born. By laws of England, the "legitimum tempus pariendi" is declarable usually "nine calendar months, or forty weeks"; but the is not exact to a few days. (Blackstone's Commentaries, vp. 456.) Nine months are either 278 or 275 days, according February is or is not included: nine calendar months and weeks (280 days) do not mean the same thing; but, as the

allows a few days' latitude, the period it seems to fix is forty

There are therefore three questions for consideration, which hall presently examine. 1. Is the period of human gestation fixed to forty weeks? 2. If not, what is the longest period, al (3) what the shortest, in which a living child can be born?

Modes of Calculation. In order to calculate the duration of panancy, the time of conception must be determined; and for his purpose three modes are adopted.

The first is the Effect of Conception on the Woman. Some women are conscious of sensations unusual to them at any other time. They not only know that they have conceived, but can predict the late of their delivery. These cases are rare; but they are valued because of the accuracy of their prophecy. Dr. Montgomery mations instances of this kind occurring in his own practice, in which labour took place on the day named, being the 280th day. Signs of Pregnancy, Ed. I. pp. 254-5.) Under this category may be included those cases, very difficult to determine, where included a single coitus.

The record method, and that most generally adopted, is to calcufrom the Last Appearance of the Catamenia forwards nine souths or forty weeks. This mode has the advantages of facility, of being general in its application, and of embracing a larger number of cases for the purpose of determining the cration of pregnancy than the former method admits of: but is liable to error from the uncertainty as to the exact time of Conception may take place immediately after the zers; or, as Coste has shown, at any time between the periods; I just before that which is to succeed, and thus arrest its appear-The most likely time for conception is the periodic maimen of the ovaries; but that is not the only period, as it may cour in the interval. In calculating the duration of pregnancy, were may thus be a mistake of three weeks. In order to avoid and to approach as nearly to accuracy as possible, the iddle point of the catamenial interval is sometimes taken as the mmencement of pregnancy, so that any error is diminished by te half.

The third mode is to date from the First Sense, which is considered to occur at the middle per or about four and a half months. Thus, if q four and a half months after the cessation of a assumed that pregnancy will terminate four an from the time of quickening. To facilitate this oning, the late Dr. Ryan constructed a very usef which the time of delivery might be calculated the year, assuming the duration of pregnancy to (See Obstetric Calendar, pp. 76-7.) Each month of contains three columns of figures; the first being the month; the second, the middle point, one hundred and from that date; the third is the two hundred and eight

In order to arrive at any just conclusion as to the pregnancy, it will be necessary to examine more propuestions to which we have alluded, which can be to atim.

Is the Period of Human Gestation fixed at Forty Week Days ? In the celebrated Gardiner peerage-case, Sir C Dr. Gooch, Dr. Davis, and others, stated their belief the weeks is never exceeded. They founded their opinion in which they were satisfied that there was only a singl and, calculating thence, they found labour to occur at two hundred and eighty days. In cases of concealed pr where the women applied for aid in their confineme was no object in deceiving the medical man as to the da first intercourse; on the contrary, knowing that this in: would be the means of determining the time of deliv would naturally be particular in stating the truth. cases are quoted, in which the husband left home imafter intercourse; and parturition took place exactly for from that date. These cases, however, were only few between; and it would be illogical to draw conclusion few instances, as to the law affecting a much larger The term forty weeks may embrace a very large m cases; but the question we have to consider is, Whe ever exceeded? In the same cause, Drs. Blundell, Conq frantile, gave evidence in the affirmative, and quoted cases from their experience, in which this term was decidedly extended; hence arose a confusion and contradiction which reflected an unjustly on the profession. The error of making absolute extensents as to a natural law on a very limited experience, on a very few facts, was not perceived.

Since then, the attempt has been made to solve the question of the limitation of the period of gestation by examining the largest possible number of facts, and seeking the conclusion which they indicated. Dr. Merriman, Dr. Reid, and ourselves, attempted to do so by calculating, in cases of pregnancy, the inbreal between the last appearance of the menses and the date of parturition. By this method a large number of facts were colected; but the calculation was liable to two errors. One arose from uncertainty as to the date of conception in that interval. This, however, was easily corrected, as we had done, by dating from three to four weeks after the last appearance of the menses at the commencement of gestation. The second was more imparlant, because more difficult to remove. The menses, in certain cases, are suspended for one, two, or three months before exception takes place; hence an obvious source of error in cars of seemingly protracted pregnancy. But then, is it fair to assume that all such cases are only instances of disordered menmution? If a large number of cases prove not only that the penod of pregnancy is not fixed, but that it is lengthened in a progressive series; if this proportion be found to correspond with the rate of gestation in the lower animals, which is also Progressive; if, further, the larger number of cases now collected, pregnancy where the first coitus is absolutely known, show a fimilar increasing series; it can hardly be asserted that these instances of protracted gestation are only proofs of a disordered constitution. The whole of the evidence collected has now clearly established that the period of pregnancy is not fixed at two

hudred and eighty days.

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The first column supposes conception to have taken place on any particular day, or the last catamental period may be taken as the time of conception. The middle column in each month will indicate pretty nearly the time of quickening, supposing, as a general rule, it occurs in middle of pregnancy. The last column will, within a day or two, indicate the date of delivery. days, or ten lunar or nine calendar months and one week, are taken as the duration of human be recollected, are delivered on the 270th or 275th day, and some on the 285th or 290th day. ........ .......... -400400rs0515 58-16543 SETESTES. ....... # 10000 = 01 March. STANKE BEEFE - 00 0 101 ........ : : .......... ...... 2:11:11:11: :::::: In reckoning by this Calendar, 280 : but many women, it must 4388888888888 ......... : .. :: 0 - 0 0 0 1 0 0 7 T ......... pregnancy; ......... ...... 

Thus it is found, that not only is the fixed date, 280 days, exceed, but that, as with the catamenia, there is an ascending and a descending series. The highest number in which the catamenia and a descending series appear for the first time is between 14 and 16 years of the and so between the 274th and 280th days of gestation are the largest number of deliveries—192 cases in 782, or about one-faith of the whole number. The same law seems to apply in the one case as in the other.

In the evidence thus afforded, we met with two cases protracted to 314 and 324 days. Such an inordinate length led to the most careful inquiries respecting them, lest there might be some undetected source of error in estimating the duration of pregnancy. We could not find anything to cause a doubt.

Case I .- Protracted Gestation (342-28) = 314 days.

M. R., set. 26, was pregnant with her third child. She was a married woman, respectable in her appearance, and intelligent in her manner. Her health had always been good; menstruation manner. Her health her geglarly every four weeks. It took place in the intervals between her pregnancies, the same as at other times. The catamenia ceased september 1st, 1841, which she attributed to her being pregnant soon after that date. She was delivered August 9th, 1842, of a girl, still-born; from her description, it must have been putrid. She is perfectly conscious that she was pregnant soon after the last appearance of the menstrual discharge; that her gestation greatly exceeded its usual time, and was considerably longer than her former pregnancies, which did not exceed nine months.

Case II .- Protracted Gestation (352-28)=324 days.

M. P., set. 33, was pregnant with her fifth child. She was a married woman, respectable in appearance, intelligent in manner, and very clear in her answers to questions. Her previous four children were all girls, and with the second she had had a protracted fregnancy. Her health was always good; menstruation commenced at 15, and returned every four weeks, sometimes sooner, but never later. It ceased the first week in March, 1843; soon after which she was seized with nausea and constant sickness of the stomach. Pregnancy not being suspected, she was placed

under treatment for a disease; but the failure of the means used to relieve her led to the belief that the irritation of the stomach was the effect of gestation; nothing further was done, and it ceased naturally. She had also occasionally a sense of weight and fulness about the loins. The movements of the child were felt in July following, and she was delivered February 16, 1844, of a boy. She stated that the child was not then above the average size; but at the time these notes were taken (August, 1844) it was unusually large and fat for a child six months old.

Professor Simpson (Obstetric Works, vol. i., p. 334) has given four cases of protracted gestation, dated from the last appearance of the menses, in which he has carefully avoided every source of error, deducting twenty-three days from the total as the catamenial interval.

Case 1. Number of days from last menstruction...336-23=313

Case 2.	99	"	.,	332-23=309
Case 3.	**	"	"	319-23=296
Case 4.	19	,,	27	324-23=301

These results receive great support from observations on the gestation of the lower animals, in which the date of intercourse and conception can always be ascertained. The late Earl Spencer gave great attention to the gestation of the cow, whose period is 285 days. He found the same variation in the duration of pregnancy in the cow, as has been just noted in the human female. The following are the periods of gestation given by him in 391 cows:—

Days of Gestation.	No. of Cows.	Days of Gestation.	No. of Cows.	Days of Gestation.	No. of Cows.	Days of Gestation,	No. of Cows.	Days of Gestation.	No. of we.
245	1	271	3	279	19	287	25	295	1
252	1	272	2	280	17	288	23	296	4
254	2	273	2	281	20	289	18	297	2
260	1	274	1	282	31	290	17	298	-
262	1	275	7	283	33	291	12	299	1000
263	4	276	6	284	36	292	10	300	-
268	2	277	8	285	35	293	7	301	2
270	2	278	13	286	18	294	5		
			- 2		To	tal numb	er of C	ows	391

The limits of the variation are 245 and 301 days; the highest amber 284 days. Tessier made more extended inquiries as to be period of gestation in the lower animals, the cow, the mare, as sow, the bitch, etc., etc. In all he found a variation. He was a table of the gestation of the cow with the following smalts:—

Days of Gestation.			Nu	mber of Cows	
From 260 to 270	1-1	14	- 200	-21	
270 to 280	4	12.	-	213	
280 to 297	14	-	-	321	
298	4	-	-	6	
299		-	-	4	
300 to 321		1.0	1	10	

This evidence is sufficient to prove the law-that the term of printion is variable: that, if human gestation were fixed to a period of 280 days, it would be an exception to the general rule. The tables already quoted prove that this is not the case. As bowever, a certain knowledge of the longest date is involved a obscurity. Professor Simpson, in his valuable paper on the contion of pregnancy, quotes two remarkable cases. One is regated by Professor Meigs, of Philadelphia, on "facts" which are \*\* trustworthy."-(Simpson's Obstetric Works, ml.i. p. 340). The patient supposed herself pregnant in July, 1889; quickened on the 20th November; had spurious labourthe 10th April, 1840; but her child was not born Le 13th September, 1840; pregnancy having "endured Burly fourteen months, or 420 days." Professor Atlee, of Philawithin, has published two cases of protracted gestation occurring and his own observation. In the first of these, the patient lost catamenia on March 22, 1832, quickened August 5th of the year, and was delivered with forceps March 22, 1833. It her fourth pregnancy. In Dr. Atlee's second case, the patient the appearance of menstruation for the last time on August 6, 1832, quickened December 25, and was not delivered till August 1833. Dr. Atlee states, that "he has not the least doubt of truthfulness of the evidence in the above cases." Professor pson, however, hesitates, and confesses "that some of the late

cases recorded particularly by our American brethren appear to me beyond the bounds of this possibility." Such was our own impression until the following remarkable case came under our notice. We were sent for (February 1, 1862) to see a lady whose pregnancy had been protracted. She had three children, the two first born at the usual term, the third a fortnight later. This pregnancy she dated from February 10, 1861, when the menses last appeared. The motions of the child were felt between the 10th and 20th of July, and she expected her confinement in November. In that month, she states that she felt her pains, and thought labour was coming on, but she received a letter which gave her a great shock; the pains at once disappeared and did not return until March 2, 1862, when she was delivered by Mr. Parrott, of Clapham, who kindly informed us that " she had a most easy labour"-" the child appears feeble and diminutive." The health of the lady has been perfectly good, but while carrying this child she has been subjected to causes of great anxiety. duration of pregnancy in this case, dating from the last appearance of the menses, would be 385 days; but, deducting 23 days' interval (Simpson) it would be 362 days, or 28 days according to our own estimate, it would be 357-almost a year.

That these cases stand as remarkable exceptions to the general rule, is clear from the careful researches of the late Drs. Reid and Montgomery. Dr. Reid formed a table of thirty-nine cases, in which pregnancy, the result of a single coitus, was known. In this list the highest number is 301 days' gestation, Dr. Montgomery formed a similar table of fifty-six cases. Both tables may be compared.

							Reid.	Montgomery.	Total.
35 v	veeks	, or	252	days				1	1
37 38 29 40	,,	,,	259				1	2	3
38	29	**	266	93			6	2	8
29	12	**	273	25	***		7	10	17
40	**	11	280	**			18	22	40
41	**	23		**	***		2	9	11
42	**	- 30	294	39	***	***	3	8	11
43	**	-17	301	1)	***	***	2	2	4
						1	39	56	95

## HOW EARLY CAN A LIVING CHILD BE BORN?

hat is the Shortest Period within which a Living Child can be This question has also given rise to much discussion, in sequence of its forensic importance in determining the legiticy of offspring. Capuron relates the case of Fortunio Liceti, o was born after a gestation of four and a half months, and ed to eighty years of age. (Capuron, Cours Méd.-Légale, 157.) No similar instance has since appeared; there is every son, therefore, to doubt its authority. Dr. Rodman of Paisley ntions a case of nineteen weeks or 133 days' gestation, in which e child survived; but the particulars are too loosely expressed insure confidence in the account. Professor Christison met with instance in which a living child was born at the 167th day, five and a half calendar months, and lived eight and a half urs. We met with a similar case. A child born about the me age, five and a half months, respired for some time, but ald not sustain respiration more than two hours, although every was taken to maintain its temperature. Professor Fleischmann ase a birth at the twenty-fifth week, or 175th day, in which child, a girl, lived for a week.

The clearest case to determine this question is one recorded by E Tait. A woman, married July 22nd, 1839, menstruated natuby the week before her marriage, and felt herself quite well only days before that event; but the menses never afterwards re-She was delivered January 18th, 1840, of a female child [7] days); but it was so feeble and so premature in its whole parance, that the question of its viability was never once enter-Its cry was so weak as scarcely to be heard a few yards and more resembled the mew of a kitten than the natural Jufan infant. There were no nails on the fingers and toes; athick down covered the head instead of hair; the skin everywhere unusually florid and thin; the extremities were imperfectly below the bones of the head were soft and easily compressed, the approximation of the sutures imperfect; the membrana Plaris was entire. The greatest pains were taken to preserve child; and so successfully, that after three weeks it began to Before it began to suck, it was so shrivelled and covered th down similar to that on its head at its birth, that several

81 Professional friends who saw it, de and were surprised that it survived as it began to suck, its whole appear became an object of great interest at weight were for the first time accurat birth (February 27th): weight three inches; centre of body nearly an inc April 11: weight five pounds three or inches; centre of body at superior margin nails were formed on the fingers and toes; natural than hitherto, the down had almos. from every part of the body. From the above to thrive until May 27th, when it was seize died after two days' illness." This case was extremely interesting, because evidence of truth, and seems to point out the Would be possible to save a premature child. Professor D'Outrepont of Willzburg gives 2 c. cumstantial. days) after the last appearance of the catamenia. A male child was born twenty-seve thirteen inches, and weighed one pound and a half. covered with smooth lank down, and was much wi whole extremities were exceedingly small in proport trunk, and were kept constantly bent over the body, the existence of the feetus in the womb; the nails of the and toes were like mere folds of the skin; the testicles w within the belly; and the pupillary membrane was entire child whined, but could not cry; it slept almost constantly awoke only once a-day; seldom opened its eyelids, and obviously insensible to light or sound. fed with a spoon on diluted milk and sugar. In four weeks down began to drop from the skin; in fifteen weeks, it had me very little progress in any respect; the wrinkles had, howen disappeared from the skin, and the length was increased an in and three quarters. But from this time, which corresponded in the fortieth or forty-second week since conception, it made not more. advances; sleeping less, eating more, crying strongi.

Probationary Essay On the Vitality of the Fætus. By A. Campbel, M.D. Edin. 1842.)

These cases are related with so much accuracy, that every confidence may be placed in them. The first (Mr. Tait's) proves the possibility, but at the same time the extreme difficulty, of preserving a child born on the 171st day—within nine days of a calendar months. This may be considered the extreme limit. The second gives an interesting account of the extra-uterine description of the feetus, and the rapid change observed when the full term of gestation was completed.

Dr. Montgomery reports ten cases of premature births, with results; commencing at the twenty-third week—161 days.

	Last Concep- Birth. Gests		on of esta-		Survival of Child.		
				M.	D.		The state of
Oc	t. 9.	Oct. 9		5	10	161	Twelve hours
	-	Aug. 24		100			Charles and the same
		married		5	21	174	Till March 10-a week
	-	July 22	Jan. 18	1	-		The state of the s
		married	1	5	27		— May 29
	-	-	-	6		183	Seven weeks
Ar	ril 10	April 10	Oct. 16	6	9	189	Eleven years
	-	April 1	- 10	6	13	193	Doing well six months afterwards
	_	Jan. 31	Aug. 14	6	16	196	Thirty years
	_	June 12	Dec. 27	6	18		
-	-	Oct. 24	May 10	6	19	199	Eleven days
1 .	_	Ang. 22	March 8	6	21	201	Thirteen years

This table shows that, previously to the 180th day, the child from survives: after that date there is more certainty.

Surmary.—With regard to the duration of pregnancy, the dence seems to us to prove:—

- . That it is not fixed to forty weeks or 280 days.
- That the longest period is uncertain. It certainly exceeds a days; but the "ultimum tempus" cannot be defined.
- 1. That the shortest period is 171 days, where extreme care and

attention may succeed; but that a feetus born at 180 days = more certain of survival.

The following table will, perhaps, facilitate calculations as the duration of pregnancy being formed, according to the number of days, weeks, lunar and calendar months. The last reckoned as being of thirty days each.

D		Мо	nths.	
Days.	Weeks.	Lunar.	Calendar.	
7	1			,
14	2		ł	1
21	3		1	Date of earliest healthy
28	4	1	1	aborted ovum.
30	4+2 days.		1	
35	5		1	
42	6		1	1
49	7		ļ	
56	8	2	1 _	į .
60	8+4 days.		2	1
63	9		ł	ì
70	10		ŀ	
77	11	_	1	
84	12	3	_	•
90 91	12+6 days.		3	1
98	13		ļ	
98 105	14		}	
112	15	_		
112	16	4	1	·
120	17		1	Uterus rises into the abdo-
126	17+1 day.		4	
133	18		Į.	Slight motions of child felt.
140		_	1	
147	20 21	5	l	
150	21+3 days.		1 -	
154	21 + 3 days.		5	
161	23			Child can breathe but not
168	23	6		[sustain respiration
175	25	U		Child can support respira-
160	25+5 days.		6	ftion. Vide Tait's case.
182	26 26		0	Child will with care survive,
189	27			Vide Montgomery's Tabie.
196	28	7		L vere proper outer & T Tree
203	29	•	1	1
210	30		7	
217	31		1 '	
224	32	8	1	
231	33	•		

Days.	was !	Mon	ths.	
	Weeks.	Lunar.	Calendar.	
233	34	-	1000	
240	34+2 days.		8	
945	35			
252	36	9		
259	37			
256	38		1000	
273	39		9	Including February.
275	39+2 days.		9	Not including February.
280	40	10	9+5 days.	Special State of Contract
(287	41			
294	42		12 1	(Highest number in Dr. Mont
301	43		10	gomery and Reid's tables, vid
308	44	11		(p. 82.
315	45			Highest number reported by Dr. Simpson, 313, vide p. 80.
322	46			Highest number in our Report 324, vide p. 78.
365	52+1 day.	13	12	Professor Atlee's case.
372	53+1 day.	13+1 wk.	12+12days	
385	55	13+3wks.	13 nearly	Dr. Murphy's case.
420	60	15	14	Dr. Meigs' case,

#### LECTURE VII.

#### DISEASES OF PREGNANCY.

The Diseases of Pregnancy embrace a very large class of ailments, many of which can scarcely be considered as such. Like the symptoms of pregnancy, they may be classed as functional and local. Some of the functional derangements are but the enggeration of the ordinary symptoms; thus nausea may become excessive vomiting; restlessness may terminate in a complete loss of rest; and so on. All constitutions are not equally able to meet the demands made upon them by gestation, and hence arise many of the so-called diseases; these are rather proofs of the nervous irritation caused by constitutional exhaustion, the any absolute morbid change going forward in the system. also the effects of weight and pressure, if frequently repe establish diseases, which are correctly so called, as a malteration is really the result: thus hæmorrhoids and var veins, enlargement of the neck of the womb, and probateri, too frequently are the consequences of gestation. Ado the same arrangement of these diseases as has been made regard to the symptoms and signs of pregnancy, we shall sider the constitutional and the local symptoms according as affect the circulation, the nervous system, the digestive or and the secretions.

The diseases of the ovum will then be considered. They an obscure and difficult subject, but one of extreme import as illustrating many causes of abortion as yet very imperfunderstood.

#### Affecting the Circulation.

CONSTITUTIONAL DISEASES.

LOCAL DISEASES.

Palpitations.
Syncope.
Œdema (of face).
Dyspnœa.
Hæmoptysis.
Cough.

Œdema of lower extremiti

Varicose veins. Hæmorrhoids,

Affecting the Nervous System.

Insomnia.
Headache.
Convulsions.
Neuralgie pains.
Distressing motion

Hemiplegia.

Distressing motions of the child.

Affecting the Digestive Organs.

Excessive vomiting.
Pyrosis.
Cramps of stomach and duodenum.
Diarrhœa.
Constipation.

# Affecting the Secretions.

CONSTITUTIONAL DISEASES. LOCAL DISEASES. adice. esire salivation. minuria.

Incontinence of urine. Retention of urine.

Displacements of the Uterus. Retroversion. Prolapsus.

STITUTIONAL DISORDERS OF THE CIRCULATION .- Palpitations ery frequent in pregnancy, even with women in average but are particularly distressing to delicate hysterical aments. The patient is unequal to her duties; nervous ion is the result; and hence the palpitations. The attack on suddenly, usually at night; the patient starts out of darmed; the heart pulsates violently; and rest is combroken. Some patients are seized with palpitations during y; and occasionally the action of the heart is so violent e whole body trembles.

cope may occur at the time of quickening, but does not In delicate constitutions, syncope is more frequent, and e produced by the most trifling causes; heated apartments, ve sights or odours, slight shocks, rapid motions-any of will induce an attack. Burns mentions a species of syn-"that he has oftener than once found to prove fatal." He et with it in the early stage of pregnancy; yet he has also take place so late as the sixth month. (Midwifery, .) He attributes it to disease of the heart.

ema of the Face and upper parts of the body is an evidence uminuria, which at any time may produce convulsions. an effect does not generally take place until the period of

pmaa is a common hysterical symptom in delicate females. such it may occur in the first months of pregnancy; but, uterus rises into the abdomen and presses on the diaa, it becomes most distressing. The patient cannot lie and what little sleep she has is disturbed by nightmare

dreams. Nevertheless, in these cases, the dyspnoa often suddenly disappears on the approach of labour.

Hæmoptysis is sometimes a great cause of anxiety, lest phthisis be indicated. No tubercle may exist in the lungs; but the hæmoptysis is an evidence of the state of the blood which is very unfavourable, as it may at any time, but especially at the time of labour, cause hæmorrhage.

Cough may or may not accompany hæmoptysis. It may be dry, short, and hacking, or hoarse, prolonged, and loud. The cough is hysterical, but may become dangerous by its constancy and violence, inducing abortion. If abortion takes place, the cough ceases—a sufficient indication of its cause.

Treatment of Diseases of Circulation. All these affections are only so many indications of debility, and must be treated on the same principles—to strengthen the constitution; to improve the blood; and to regulate the bowels, which are always disordered. The aloetic purgatives, myrrh, rhubarb, the daily use of lavements, are all necessary; but active purgatives should be avoided. Small doses of any of the above-named purgatives, frequently repeated, are far preferable to full doses. With these purgatives, tonics are often combined; and that which is generally preferred is iron, because of its effect on the blood. The sulphate or phosphate may be given with great advantage.

Cases of syncope require great care, because they are sometimes dangerous. Every possible cause of excitement should be avoided; crowded rooms, public exhibitions, rapid travelling, should be dispensed with.

CONSTITUTIONAL DISEASES OF THE NERVOUS SYSTEM.—The nervous system gives evidence of disturbance in these cases, equally with the circulation. Rest is frequently interfered with, even in health; but—

Insomnia—total loss of rest—is only met with in cases of debility. The patient is generally thin, perhaps emaciated; the child to which she gives birth may be large and fat: the demand made for support is more than she can bear; and hence the result.

There is a great variety in the manner in which the patien'

re affected by want of sleep. Some are not much inconvenienced by it; they do not feel the same amount of fatigue in morning that might be expected. In some of these cases, can scarcely believe that they have not had some sleep, although not conscious of it. We remember one patient who was at conscious of having slept for three weeks. It is difficult to believe that there was not some sleep within that time. In their instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, women are greatly distressed by loss of the instances, where it is defined to the instances of the instances.

Sometimes the sleeplessness at night is compensated in the daytime: the order of nature is reversed. In general, this democration is fortunately not of long continuance; and, like many the affections of pregnancy, it disappears suddenly.

Treatment of Insomnia. Anodynes have very little influence a these cases: opium acts rather as a stimulant, and assists in them awake. Denman found a cup of cold water on ring to bed to do more good. A cup of cold beef-tea would be beer.

Headache may be either a very serious symptom, or one of ciding importance. If accompanied by suffusion of the eyes, in the ears, balache is very dangerous; and, if not promptly relieved, may iminate in convulsions. The patients who are liable to such exist are generally of strong plethoric habits, not very modelin their appetites; and these attacks frequently follow after fall meal.

Treatment of Plethoric Headache. In such cases, depletion filoses by active purgatives is essential to prevent one of two leads, convulsions or mis-carriage. Exercise, low diet, the litrace of all stimulants, should be insisted upon. Patients of very different temperament are also liable to headache, which only one of the many forms in which neuralgia presents itself. The delicate and hysterical; the pain is often severe, and ally partial. It may have its seat across the temples, on one cor other of the head or at the occiput. It lasts for a short

time, again returns and is sometimes periodic, observing the dates of the catamenia.

Treatment of Neuralgic Headache. These cases, which are instances of constitutional debility, require the treatment alluded to in p. 90. Quinine in full doses sometimes gives immediate relief.

Convulsions of the true puerperal type may occur during pregnancy. Of these the headache above alluded to is the monitor; but usually they are of an hysterical character, met with in patients disposed to syncope, who are highly excitable or much exhausted. The pale and anxious countenance, the anæmic aspect, and nervous twitchings, sufficiently indicate the character of the constitution and the treatment necessary. These convulsions are seldom dangerous; but in some instances have induced miscarriage.

Neuralgic Pains vary very much in their seat. They give rise to the headache which has been just alluded to. Neuralgia of the face, like tic douloureux, is sometimes met with. Severe pains under the left mammæ, and even sciatica, occasionally occur; but by far the most troublesome of these affections, and perhaps the most frequent, is—

Toothache. The tooth may be sound or diseased. If the former be fortunately the case, the practitioner might hesitate as to the propriety of removing it; but if it be diseased, and he proceed to extract, the patient receives only temporary relief. Another tooth, perhaps a decayed one, is seized upon by the pain, and may be extracted also. While the removal of the teeth gives no real relief to the patient, the dread of the operation is not unaccompanied with danger. Abortion has been known to follow this simple operation. In all such cases, extraction should be avoided. Chloroform may be inhaled, or chloric ether administered to relieve the pain; but iron will best remove its cause.

Distressing Motions of the Child seems to be an indication of neuralgia of the uterus. These movements generally cause no inconvenience, sometimes even pleasure; but there are cases in which they cause pain. The patient is awakened by a sudder

the dist. They are not so troublesome during the day, and are really relieved by the support of a properly applied bandage.

Constitutional Diseases of the Digestive Organs.—The feative organs are frequently the seat of deranged action.

Name and Vomiting, when not in excess, and occurring periodally, are rather indications of health, than of disease; but are occasional exceptions in which the irritation of the each is so violent and protracted as to place the patient in the function of the danger. Miscarriage may take place; and, if she recover the immediate loss of blood, it may save her; but she may of manition. The symptoms and danger will be best under-

mod by the relation of a few cases.

Dr. Johnson reports in the Lancet the case of a lady aged that, "who soon after marriage ceased to menstruate. She leans affected with morning sickness, which was naturally ultibuted to pregnancy. The sickness became worse, and unting of any kind could be retained on her stomach. Pregnature not detected; but the disease was attributed to the plane. The sickness and emaciation were the only symptoms. She died; and "after death no morbid appearances abservable in any part of the body. The uterus contained attra about four months old. This patient was literally starved beath." (Lancet, March 3, 1838, p. 825.)

A very remarkable case is related by the late Professor Davis, which occurred in the practice of Dr. Haighton. She had most distinct vomiting in two previous pregnancies. This was her family and she was in about the sixth month of gestation. If the Dr. Haighton and the practitioner in attendance could did not correct the vomiting. She was sent to Islington, but med without receiving any benefit. "She was then in her much month. Her sickness grew worse; but it underwent some for sometimes it would be very violent, and then intermined. If means were used to stop the looseness, the sickness mediately returned. . . . . During a few days in the gress of this exhaustion, I observed that her strength declined

much faster than before I (Dr. Haighton) expressed to he mother my wish to to be permitted to invite a tendency to labour. Dr. Haighton did not like to induce abortion on his own responsibility. A consultation was held; some delay took place before coming to a decision. "At this time, unluckily, she had retained about half a pound of nourishment; and the sickness had no increased. He (the consultant) thought it proper therefore the defer the operation, although I explained that this was one without delusive intervals that terminate in diarrhoad. So indeed proved; for the next day she was exceedingly ill," and in consequence of this hesitation died two days afterwards. (Obstetrated Medicine, vol. ii. p. 871.)

Dr. Churchill relates an interesting case which occurred to his in consultation with Dr. Maguire of Castleknock. "The patient was a young woman pregnant with her third child, and at about four months was attacked with incessant vomiting, until her list was rendered intolerable and her strength nearly exhausted. never saw such agony in any case. We tried all the usual remedie with occasional relief, but the vomiting returned, and, finding the she could obtain no nourishment whatever, that her bodily power were worn out, that her pulse was steadily 120, I determined, at the sixth month, to induce premature labour, which I effected be penetrating the membranes and giving ergot of rye. She was delivered of a dead feetus, recovered rapidly, and has since born a child at the full time." (Practice of Midwifery, 4th Edition p. 301.)

We have not been so fortunate. We were called, some year ago, into consultation on the case of a lady pregnant with her first child. She had frequent attacks of severe vomiting, almos from the time of conception. About the third month, it becames so severe as to cause great emaciation and exhaustion. Severa remedies were used to no purpose; and at the eleventh hour, the question was asked, what further could be done? She was fass sinking; the time was passed to attempt the induction of premature labour; and she died in about two days afterwards.

Thus, in four cases of excessive vomiting followed by exhaus tion, three were lost through hesitation and delay; and on was saved by promptitude in inducing miscarriage. te, hydrocyanic acid, all have been tried with about equal They have sometimes succeeded, but more usually have The cause of this violent vomiting does not exist in the th; and therefore those medicines which generally control tation are found of no use. The cause exists in the action on in the uterus; and the vomiting in some cases very much bles that produced by nervous shock. If this be so, it may for inability of the constitution to sustain the demand made , or from some morbid-perhaps poisonous-action going d in the utero-placental circulation. The latter must of ity lead to the death of the ovum and its separation from the uterus; this has sometimes occurred naturally, and the patient. The former may be relieved by treatment d not to the stomach alone, but to the uterus also. Strong with ice, and hydrocyanic acid, will be found service-Counter-irritation over the sacrum, followed by opiate and anodyne injections into the rectum and vagina, will such assist in allaying the irritation of the stomach; but using these injections the bowels should be regulated, so scybala or other cause of irritation remain to influence nuch. By these means, vomiting may in milder cases be ; sometimes it ceases of its own accord, and if so, the ald be said to the dist of the nations and to

mouth. She then experiences a temporary relief; but the attack always returns after eating, when the contents of the stomack may be rejected. In some cases, eructation precedes these distressing symptoms.

Treatment. The symptoms are best relieved by the solution of fluid magnesia and hydrocyanic acid. Great care is also necessary in respect to diet. Vegetables are generally hurtful; but it is very difficult to determine in these cases what agrees with the stomach; it must be allowed to tell its own tale.

Cramp of the Stomach and Duodenum has been described by Burns as an affection, the symptoms of which very closely resemble those attending the passage of a gall-stone. In the cases he met with, the pain had been so violent as to place the patient in danger of miscarriage.

Treatment. A full dose of tincture of opium and chloric ether will always give relief; but tonics are also necessary to prevent a return of the attack. The infusion of chamomile, with nitromuriatic acid, will be found very serviceable.

Diarrhaa frequently accompanies pregnancy; and is sometimes an evidence of its existence. Patients who are, at other times, free from such attacks, are seized soon after conception; and hence, with these, diarrhaa is one of the most certain signs of pregnancy. Diarrhaa is sometimes a premonitor of labour, and is useful in preventing the bowels from being loaded at this important time. In neither of these cases can diarrhaa be spoken of as a disease. It is only an irritation reflected from the uterus; and will subside of its own accord. Cases, however, occasionally arise in which it becomes constant, and sometimes very exhausting. The appetite is lost; the tongue furred; and the evacuations very offensive.

Treatment. In these cases, chalk mixture with catechu or kino will check or at least moderate the diarrhoa; but alteratives are essential to remove the cause. Hydragyrum cum cretâ with rhubarb, given in very small and frequently repeated doses, will be found useful. Lime-water and milk will assist in allaying irritation. The surface must be kept warm; and strict attention given to the diet.

Constipation very commonly occurs during pregnancy. It may have existed before conception; or may take place soon after the terus enters upon its active duties. In many of these cases, the extipation causes no inconvenience; the patient is not aware that her bowels are confined, because there may be a daily remation which deceives her. At length, however, disturbance brins. Shooting pains through the abdomen are followed by pains in the back, with a sense of bearing-down. It seems to be abortion or miscarriage were about to take place. If an termination then be made per vaginam, the cause is explained by be loaded rectum.

When this occurs near the time of parturition, much more distuding symptoms present themselves. Severe false labour pains induced, which are much more intolerable than the true pains commencing labour. They are mistaken for labour pains; at it is not until they have continued uselessly for some time, that their cause is ascertained. In these instances, the rectum is locked up by a mass of indurated faces, which it has lost all there to expel. The irregular accumulation of scybala ("the lack") presses forward into the vagina so prominently as larly to fill the passage. This condition of the rectum reacts the uterus, and causes the false pains.

The Treatment of these cases does not consist in merely unloading the bowels by active purgatives. This must be done in the minimum of the large intestines. There are many cases in thin habitual constipation has been established before pregately—before marriage. The habit is acquired by much sedently employment; and an over-sensitive delicacy leads to it. The marriage and conception take place, the activity of the marr

preferable. In the earlier periods of pregnancy, when bowels are once relieved, a lavement should be used daily; war water or thin gruel will answer the purpose. After the evacus tion takes place, an astringent injection will be found very ser viceable; an ounce of decoction of oak-bark and poppyheads or decoction of cinchona with thirty minims of tincture of opium may be injected slowly into the rectum. This plan alone may be sufficient; but it is not always easy to carry it out, and therefore we are compelled, as it were, to act through the stomach-In such cases the combination of tonics and aperients, in small doses, will often be found much more efficient than the stronger cathartics. Half a grain of the phosphate of iron, with a grain of the compound colocynth pill, repeated every two or three hours, will do more good than double the dose at longer intervals; so with quinine and rhubarb; extract of henbane and aloes, etc. There are certain cases in which all these remedies fail, and in which it becomes actually necessary to remove the fæces artificially. When once, however, this is accomplished, the use of astringent injections will prevent any return of the difficulty.

Constitutional Diseases of the Secretions.—The secretions may be disordered by pregnancy.

Jaundice is met with in some cases. The yellowness may be slight or deep; it may be accompanied with dyspeptic symptoms or not. In general, it is only an evidence of reflex action; but sometimes it has been known to depend on disease of the liver. When this is the case, other symptoms of hepatic derangement will manifest themselves, which will require appropriate treatment and great attention, because it is a very dangerous combination. But what may be called sympathetic jaundice often passes away of its own accord, and, if not, will do so, if attention be paid to the bowels. Small doses of blue pill and henbane, followed by a neutral salt in any of the tonic infusions, en erally be found sufficient for the purpose.

Excessive Salivation sometimes, but very rarely, occurs. The salivary glands are not swollen, although tender; nor are the gums inflamed; but the saliva accumulates, and distresses the patient very much. It may subside suddenly; but if it con

bet another and a different set of glands in action. Thus saline purgatives, by exciting the secretion from the intespent, will control that from the salivary glands.

Albuminuria has been mentioned but lately in connection with regnancy. Œdema of the face and upper part of the body tuning pregnancy was considered by Montgomery an indication puerperal convulsions. Hamilton, Burns, Ingleby, and others, pplied the same remark to anasarca. It remained, however, for Drs. Simpson and Lever to connect cause and effect, and to prove that this cedema and anasarca were the result of albuminuria, just as is observed in Bright's disease of the kidney; and that the cause of the convulsions was the condition of the blood promosed by this disease. Albuminous urine in pregnancy is not always a proof of Bright's disease. So long as that disease exists, the albuminous urine remains; but in pregnancy it often disappears after parturition, proving that it is not caused by the wganic disease described by Bright. The same effect seems to be produced by congestion of the kidney. It is observed that "albuminuria and its effects are far more common in first than in later labours, and these constitute a disease which in general disappears entirely after delivery."-(Simpson's Obstetric Works, w. i. p. 830.) In the first pregnancy, there is much greater presure on the leading venous trunks in the abdomen than in subsequent pregnancies; the abdominal muscles are more powerful, and Jess the uterus more backward. Hence arises congestion of the real veins; which, as Dr. Cormack has shown, will produce the me effect as Bright's disease. Albumen is passed in the urine, and urea is retained in the blood. Puerperal convulsions are not the only consequence to be dreaded from this serious symptom. Dr. Simpson has observed as the result, amaurosis, loss of hearing, paraplegia, hemiplegia, and other derangements of the neryous system. Hence the importance of promptitude in meeting the attack.

The Treatment must be directed to relieve venous congestion; and therefore depletion is indicated. Active aperients are also necessary; diet of the least stimulating character; in fact, everything that will diminish the engargement which opposed kidney. In following out this treatment, caution is seement must be recollected that a poison (urea) is in the blood, at there is consequent nervous depression. While, therefore, the of the constitution is lowered by depletion, it must be at supported. Tonics are necessary. Stimulants after do may be cautiously used. The temperature must be main and rest, if necessary, procured by anodynes. For the pose, chloroform or chloric ather will be found very Diuretics may be given with great advantage: the macetate of potash, in the infusion of juniper; scoparing reira brava, etc., may be employed. If the urine, agencially scanty, pass freely, the albumen will dimin perhaps ultimately disappear.

Local Diseases of the Circulation. — Edema of t Extremities. This may be part of the disease just de albuminuria; and in all such cases the condition of should be carefully examined; but it may be the rest of pressure—the iliac veins may be compressed while veins are free. It is first perceived by the foot beclarge for the shoes: by and by the veins begin to swell exdema increases; at length it extends up the limb, patient is unable to walk.

Treatment. However inconvenient, these cases are gerous. Mild saline aperients, with moderate pressure on are generally sufficient. The ordema may subside, as other cases, suddenly; or it may continue until labou cluded. In the latter case, the strictest attention is nechave the limb properly supported, until its size is rest the enlarged veins disappear.

Varicose Veins are generally met with in women who many children; the veins have been frequently ex

the patient is safe; but a very trifling wound may cause a very prious harmorrhage, and certainly establish a most unmanage-tile ulcer. This condition of the veins is generally observed tout the fourth month of gestation; and it is probable that, in the cases, the space between the uterus and pelvis is so limited that the iliac veins are strongly pressed upon, just as the uterus a rising into the abdomen. But when the uterus occupies the themen, and that pressure is taken off, still the veins remain turicose. It is probable, therefore, that a subacute inflammation this place in their coats; that the circulation is thus interrupted; and the varicose condition still remains. This may explain the instead character which these veins sometimes present.

Treatment. Rest in the recumbent position, the elastic webbindage, and aperients, are the only treatment which can be adopted during pregnancy. Afterwards friction, and the firm apport of a laced stocking, should be used to strengthen the veins as far as possible.

Hamorrhoids are also the result of pressure, and sometimes become extremely troublesome. They begin to appear about a middle of pregnancy, and gradually increase both in size and unher towards its conclusion. After delivery they disappear; a least, they cease to annoy the patient. Women who have had any children suffer most from hæmorrhoids; because, the cause of irritation being frequently repeated, they become permanent.

Sometimes the anus is surrounded by a bunch of very large benerrhoids during pregnancy, which afterwards scarcely diminible in size. If these bleed, the patient is relieved; otherwise she afters great distress.

Hamorrhoids are not caused merely by the pressure of the thrus; they are sometimes produced by a sluggish state of the liwels. Hence in the

Treatment, the chief attention is directed to regulate the bowels.

All stimulant and drastic purgatives, especially aloes, should be avoided. The lenitive electuary, with bitartrate of potash and sulphur, has been an old favourite. Gallic acid or powdered palls are added as astringents. The injection of warm water into the rectum often gives relief; but, in many cases, this cannot be

The hæmorrhoids are expelled with efforts  $\alpha$ bowels; they may be strangulated, and cause excruci In these cases, they can generally be reduced; and wh replaced, a small candle-end smeared with gallic acid may be inserted into the rectum, and be replaced fro time. If the gallic acid ointment cause pain, opium o amus may be substituted. If this should fail, leeches applied; but no attempt should be made to remove the

rhoids at this time by operation. Hemiplegia may be the result of albuminuria; and if

disappear when the cause is removed. Paraplegia may also depend upon the same cause. however, arise occasionally in which the spine is disease these cannot be cured. They are more interesting in a p logical than in a practical point of view. (p. 43) alluded to a remarkable case of paraplegia, relate Dr. A. Farre; in which, although the patient was perfectly; lysed from the umbilicus downwards, and no reflex action a be excited, the uterus contracted perfectly and expelled the ch In the year 1842, we were favoured by Mr. Shaw with the rep of a very similar case which was under his care in the Middles Hospital. The woman had paraplegia from caries of the spin She was admitted into the hospital, April 6th, 1842, without at power of moving her limbs; she had no control over the blade or rectum. She was about five months pregnant.

hospital about a month afterwards, and was delivered in Scotland in August, of a still-born child, which presented the arm. The uterus contracted perfectly. Incontinence of Urine is an annoying attendant on the early months of gestation; it soon, however, subsides, and may not return. In the last month, however, just before labour, the pressure of the uterus on the bladder often renews the attack. In neither case, can much be done; only so far as by mechanical contrivances, of which there are several, to save the patient from the inconvenience.

Retention of Urine is more rarely met with. It is generally produced by the displacement of the uterns known as retroversion, which we shall now consider.

DPLACEMENT OF THE UTERUS. Retroversion of the Uterus believed by Denman and the older authors to be an accidental spacement occurring at the fourth month of pregnancy, when terus completely occupied the pelvis, and its position might asily disturbed. It was supposed, that it was caused by an mer-distended bladder; that the urine was retained from some aknown cause, and pressed back the uterus. The first symptom which attracted attention was retention of urine; and hence it was assumed to be the cause of the displacement. The improved howledge of uterine pathology has proved that retroversion, or rather retroflection of the uterus in its non-gravid state, is a common occurrence. If, therefore, it become gravid, its position will remain unaltered; the retroflected uterus will enlarge; but, in doing so, must press directly on the rectum and push the cervix against the urethra. Constipation and retention of urine follow; and the distended bladder and bowels, the latter filled with air from irritation, press down upon the rising uterus. If, unfortunately, the promontory of the sacrum project, the difficulty of escape is increased, and thus the uterus is impacted, as it were, in the pelvic cavity. The cervix does not remain retroflected, but is straitened and drawn upwards.

The Symptoms are obvious. The bowels become more and more constipated; and the patient herself feels an obstruction in the passage. She bears down with the motion, but feels something in the way. By and by the bladder becomes irritable; urine is passed, but with difficulty; at length it will not pass at all. Then commences the distress from retention of urine; and assistance, perhaps for the first time, is called for. In relieving the bladder, the practitioner at once perceives the cause. The urethra is drawn up against the pelvis; he cannot find the os uteri; and the vagina is pressed forward by a firm tumour-the retroverted uterus. These cases, when neglected or unknown in the first instance, become very difficult to manage. It is possible that, by keeping the bladder and rectum empty, Nature will overcome the difficulty, and that the increasing uterus will rise into the abdomen; but she may fail, and artificial means must be employed.

Treatment. Attempts have been made to replace the uterus introducing bladders (Halpin) or vulcanised India-rubber pe ries (Gariel) into the vagina, and then inflating them. By means a more equable pressure is supposed to be directed aga the retroverted uterus, by which it is pushed upwards. Inst ments have also been contrived for this purpose, one of wh invented by Dr. Bond of Philadelphia, is described by Dr. Me and found by him successful where other means had failed (Obstetrics, p. 50.) We confess that we have very little co dence in these methods. They are ingenious, and have b successful; but using them is like groping in the dark-you not know exactly where the pressure is applied. It is not with the fingers, which generally can be made to answer the r pose. The patient should be placed on her hands and knees, two fingers passed into the rectum; two of the opposite hand the vagina; pressure may be made with the four fingers aga the tumour-the fundus-between them. If it be even slight raised, the fingers in the vagina should seek the os tincæ. may be passed up directly behind the pubes; and if the cer be reached, it may be drawn down while pressure is still c tinued against the fundus through the rectum, If the uterus thus replaced, a circular pessary might be directed to the ante wall of the cervix uteri, so as to prevent, if possible, a sec retroversion. In extreme cases all these means may fail, and induction of abortion is the only resource left-a very diffi operation, because, the os uteri being so much out of reach, usual means for this purpose cannot be applied. Ergot of may be given with advantage; because, as the tendency of uterus is to relieve itself and to expel the ovum, its action more easily excited. No cases illustrate the maxim "preven is better than cure" more perfectly than these; because t distressing and sometimes dangerous symptoms may almost alv be prevented.

When the patient complains of constipation during the formonth of her pregnancy, of irritability of the bladder, and of difficulty in passing urine, of a sense of weight and bear down in trying to evacuate the bowels, the practitioner sh

respire an examination per vaginam to be made. If this be submitted to (and when the reason is properly explained, it will never be refused), he will at once perceive the retroversion, or perhaps it may be the retroflexion of the uterus. Behind the os uteri, if within reach, a tumour will be felt; and if the opposite hand be placed on the abdomen, above the pubes, it may be pressed down at the pelvis without feeling anything like the uterus. The displacement having thus been ascertained, by strict attention to the bewels, the daily use of the lavement, and of the catheter if pecessary, the uterus may correct itself; if not, the fingers can be so much more efficiently here than in extreme cases.

Prolapsus Uteri is not so much a disease of pregnancy as a pre-existing disease. The womb may become pregnant, although prolapsed. These are always very troublesome cases in the early months of pregnancy, because of the increasing weight of the uterus. Afterwards, however, they are less so; and, as the uterus eccupies the abdomen, it rather rises from the vulva. As parturition, however, approaches, and the uterus again descends towards the pelvis, the cervix passes down the vagina, and is sometimes quite close to the vulva before labour begins.

The Treatment for such cases is a proper supporting bandage, which must be worn throughout pregnancy. The recumbent position should be as much as possible observed, especially when labour approaches. A sudden dilatation of the cervix may take place, and the child be expelled in a single pain.

### LECTURE VIII.

DISEASES OF THE OVUM.

The diseases of the ovum are involved in obscurity. We know some of the results—the post mortem appearances; but the diseases which cause these morbid alterations, and their symptoms, are

unknown. Degeneration of the ovum is a term which will sufficiently express these effects, but the cause of the degeneration is the difficulty. In certain cases, where an animal poison, as syphilis, is the known cause of morbid changes, we are less at a loss; the poison may be controlled, if not removed; and abortion, the result of its destructive influence, prevented. But unfortunately, there are many more cases in which degenerate ova will be again and again expelled; and we only arrive at the safe conclusion that the womb has the habit of aborting—something like saying "it is the will of God."

The chorion, the amnion, the placenta, all may undergothanges of structure. The feetus may be atrophied or deformed and new morbid growths may take its place. The chorion may be morbidly hypertrophied, or atrophied. The amniotic fluid may amount to dropsy, or be deficient. The beautiful and delicate structure through which the utero-placental circulation is carried on, may be congested, broken, inflamed, or softened. Just as in the lung, we have congestion (apoplexy), inflammation hepatisation, and gangrene, so the same phenomena are observed in the placenta. We shall consider these changes separately.

DISEASES OF THE CHORION. Hypertrophy of the Chorion (Hydatids) expresses the morbid change which takes place when the general development of this membrane is arrested, while the growth of certain parts of it continues, or is, perhaps, morbidly increased.

We have explained that, when the ovum arrives in the uterus, it is enveloped by a chorion covered with villi; that these villi collect at that part of the uterus where the placenta is about to be formed—the remaining villi separating, shrinking, and ultimately disappearing. These villi are closed tubuli, containing the terminations of the fœtal vessels, which insert themselves it the decidual membrane. If, however, the development of the chorion be arrested, the villi remain as they entered the uteru surrounding the ovum. As they increase in size, their tubula character is altered; a fluid collects within the tube, and gradually changes it from a tube to a sphere. The extremity of the tub first presents this character; the tube terminating in a small globule, like a currant on its twig. Then the tube disappears

and the enlarged globule only remains. Thus the chorion is ultimately converted into a collection of eysts, constituting the times known as "Hydatids" (fig. 23). Time will not permit to enter minutely into the pathology of this disease; but this



deficiency is well supplied by a valuable paper by Dr. Barnes in the British and Foreign Medico-Chirurgical Review, (1855), to which I refer you.

The necessary effect of this morbid change in the chorion is that the feetal circulation is not established, and therefore the feetus is blighted soon after it enters the womb. Hence the traces of the feetus are constantly lost; and as, in the examination of the hydatid mass when expelled from the womb, nothing like a feetus is found, the disease is assumed to have no connection with conception—an opinion which is strengthened by those cases where the symptoms and signs of pregnancy had long ceased or were forgotten. There is, however, every evidence that morbid specimens can give of these progressive changes of the chorion

<sup>\*</sup> Fig. 23. Uterine Hydatids.

to be found in the pathological museums; there are several in University College; and we must infer that in those cases when the focus is absent, and we have no evidence of pregnancy, either the signs were forgotten, or so imperfectly marked as not attract attention.

The Symptoms which characterise this disease are obscur-The cessation of the menses indicates pregnancy; nausea, fulness of the mamme, increasing size of the abdomen, follow; bsoon the nausea ceases, the mamme become flaccid, and all the early symptoms of pregnancy disappear, except the enlargabdomen; and even here the sensation is different, being that a dull heavy weight.

If the morbid changes take place rapidly, the uterus me endeavour to expel the mass; and if it do so, these sympton are succeeded by hæmorrhage, expulsive pains, and other sym toms of abortion. Sometimes broken cysts will be discharge with the blood, and will indicate the nature of the case before the mass is separated; or the whole collection may be expelled with a gush of serous blood. The disease may make a slow progress; and then symptoms of pregnancy are lost sight c The abdomen remains larger than usual, and slight serous hæmo rhage returns from time to time, This is mistaken for irregula menstruation, until ultimately a profuse hæmorrhage places the patient in immediate danger. An examination per vaginam w explain the cause. Some portion of the diseased mass is gen rally found, which can be removed and examined; and if cy be found, the separation of the remainder depends upon position. If a portion have passed into the vagina, it may possible to dilate the os uteri, so as to detach the whole; if n the vagina must be plugged, and ergot of rye given to excite t uterus to expel its contents.

Atrophy of the Chorion is an opposite condition, in which to villi do not accumulate in the usual manner to form the placent. They remain in a great degree scattered, but still unite the selves with the decidua, so as to carry on the circulation. The placenta thus formed presents a membranous appearant and has been called the membranous placenta. The feetal vesses

ce of entering the substance of the placenta before dividing, to distribute themselves over the membranes, just as is sed among the lower animals, as in the mare. Such cases re, and do not seem to affect materially the development of tus.

ess; possibly as the result of inflammation, because in some instances the membrane is observed to be thickened. For the amnion does not arrest the progress of development; ghat the full period, the child is generally, but not always, r than usual. It is only when adhesion between the n and foctus takes place, that development is interfered with; is adhesion may occur from the same cause that produces re-inflammation.

come of the Amniotic Fluid. The amniotic fluid may be not in quantity, and hence fail in one of its most important—the protection of the feetus, which may be thus too much



exposed to the contractile power of the uterus during pregnancy. At the time when the fœtus acquires sufficient size to occupy the womb, it may come into direct contact with it; and, there being not sufficient liquor amnii interposed, the limbs are fixed in their position, and deformity is the result. Cruvielhier has given a remarkable example of this, which will sufficiently explain the effect (fig. 24). Adhesions also between the amnion and fœtus are also more likely to occur than when dropsy takes place; and whenever this occurs, deformity is the result.

24. Deformed foctus from deficient liquor amnii. After Cruveilhier,

to be found in the pathological museums; there University College; and we must infer that in the the feetus is absent, and we have no evidence of prothe signs were forgotten, or so imperfectly marke attract attention. The Symptoms which characterise this disease a The cessation of the menses indicates pregnancy; na ness of the mammæ, increasing size of the abdomen, to soon the nausea ceases, the mammae become flaccid, an early symptoms of pregnancy disappear, except the abdomen: and even here the sensation is different, being a dull heavy weight.

If the morbid changes take place rapidly, the uter endeavour to expel the mass; and if it do so, these sta are succeeded by hæmorrhage, expulsive pains, and other toms of abortion. Sometimes broken cysts will be disc with the blood, and will indicate the nature of the case the mass is separated; or the whole collection may be exwith a gush of serous blood. progress; and then symptoms of pregnancy are lost sign The disease may make a si The abdomen remains larger than usual, and slight serous bes rhage returns from time to time, This is mistaken for ing menstruation, until ultimately a profuse hæmorrhage place patient in immediate danger. An examination per raginant explain the cause. Some portion of the diseased mass is rally found, which can be removed and examined; and if be found, the separation of the remainder depends upon position. If a portion have passed into the vagina, it may Possible to dilate the os uteri, so as to detach the whole; if the ragina must be plugged, and ergot of rye given to excite Atrophy of the Chorion is an opposite condition, in which the villi do not accumulate in the usual manner to form the placess They remain in a great degree scattered, but still unite them selves with the decidua, so as to carry on the circulation The placenta thus formed presents a membranous appearance

and has been called the membranous placenta. The fortal vessels

but here are many cases in which congestion of the placenta is aboved, where the cause is by no means so obvious.

The influence of congestion or apoplexy of the placenta on the litts is very evident in the early months. The specimens of this issues of the placenta are also examples of arrest of development in the fectus. In the last months, the influence is not so manifest, unless miscarriage take place. A child may be born the full term, of the average size and strength; and yet the placenta may present evidence of local congestion.

At the time of labour, when it is severe, congestion seems to me to be one of the causes of the death of the child; the accumulation of blood forced upon the finely reticulate structure of the placenta bursts through the cells, coagulates, compresses the feetal vessels, and prevents the changes necessary in the feetal blood from being carried out. A clot is interposed between the maternal and the feetal vessels.

Inflammation of the Placenta was brought before the profession time years ago by Professor Simpson (1835) in a valuable paper (Simpson's Obstetric Works, vol. ii. p. 397). Previously increased but little attention. Morbid adhesion of the placenta to the uterus was laid down as a cause of its retention; but the cause of the adhesion was never inquired after. Inflammation and its results have now been pointed out, and it only needs a careful record of the previous history of these cases, to determine precisely its symptoms. Professor Simpson divides the anatumical characters of the inflammation into three stages:—

First. The stage of inflammatory congestion and the effusion of

Second. The effusion or secretion of fibrine or coagulable

Third. The secretion or effusion of purulent matter.

The First Stage—congestion—is very difficult to discriminate from the congestion which is not inflammatory. The former may be more circumscribed than the latter; but it is only when the morbid action of inflammation—the effusion of serum, lymph, pus, softening or induration of the tissues—gives evidence, that we can be certain of the cause.

The effusion of serum alone is rarely observed. When the placenta separates, the serum escapes, and leaves it a more ragged softened, and irregular mass than usual. We once, however, had the opportunity of observing a case of effusion which amounted to dropsy. The placenta was of twice the usual size. The whole tissue was so perfectly infiltrated, that the fætal vessels were a distinct to their ultimate ramifications as if the placenta had beer macerated. The child was of the average size, but also drop sical. The history threw no light upon the case; but it was probably the result of inflammation, running rapidly into effusion of serum. The child being fully grown, proved that the morbid change did not affect its development; and therefore it is probable that the change did not take place until it was nearly completed.

The Second Stage-effusion of coagulable lymph-is best observed in cases of morbid adhesion to the placenta. Lymph, the result of inflammation, being effused between the placenta and uterus becomes organised and unites the surfaces. Usually thes effusions are partial-a few cotyledons being adherent, generally towards the centre of the placenta. In some cases, the circumference and not the centre is its seat. The margin of the placenta in its healthy state is more firmly united to the uterus than the centre; and if inflammation take place, the effused lymph may so strengthen the adhesion as to render separation impossible. Thus, it seems to us, may be explained some case of fatal hæmorrhage, in which there was no discharge of blood externally. The blood was poured into the centre of the plat centa, separating it from the uterus; the margin did not give way; and, when death took place, and the placenta was examined and separated, it was found pushed forward by a quantity o coagula, which could not escape in consequence of the adhesion of the margin.

On the fatal surface, also, white patches of coagulable lympt are sometimes observed; but this change is generally found it connection with the effusion of serum. The white patch on the fatal surface of the placenta may engage both chorion and amnion; with the former, there is serous effusion in the placenta with the latter, dropsy of the amnion.

The Third Stage—effusion of pus—is not so frequently met with; and, of the cases reported, we have only the post mortem the process without any previous history. We are uncertain, interfore, whether these are strictly instances of placentitis or premia. The cases in which I have had an opportunity of the principal three effusions of pus, were cases of purperal fever; and in one instance, which cannot be strictly so called, there was utensive softening of the tissues of the uterus, with infiltration of an extending to the placenta. Inflammation, however, may be estimes be the cause, especially where small circumscribed decesses are found.

The Causes of inflammation of the placenta are very obscure, refessor Simpson has taken great pains to determine them, and pates several cases in confirmation of Brechet's view, who enuments as causes, "blows upon the belly; falls; violent succusions; sudden and great movements; frights; emotions; all inds of lively and profound sensations; and diseases of the other, particularly metritis." (Obstetric Works, vol. ii. p. 432.) is other words, all causes which suddenly disturb the circulation the placenta may cause inflammation; and, just as in the lang a cold" (congestion) is followed by bronchitis or pneumo-lin, so congestion of the placenta is succeeded by inflammation. Let the immediate cause of the congestion and inflammation is just as difficult to determine, as how a patient "caught cold."

The Symptoms are obscure, unless the inflammation extend to be uterus. In such cases the patient is distressed by spasmodic plan, especially at night; the motions of the child are painful; at there is general fever. Professor Simpson describes lumbar at uterine pains as characteristic of this inflammation.

The Treatment is like that of inflammation of the lungs—
interior followed by antiphlogistics. Formerly depletion was
interested as a rule, whenever a pregnant woman complained of a
pain in her side," which might mean the inguinal or even the
later region. She was generally benefited by the treatment;
it is probable that inflammation of the placenta was checked.

Softening of the structure of the placenta may be the result of

severe labour where the death of the child has taken place before delivery. This change is allied to another—

Fatty Degeneration, which the able researches of Dr. Barnes have recently elucidated. This may be also the consequence of inflammation. The yellow nodule - the fibrinous depositbecomes altered in its character; it is paler, more easily broken; and, when carefully examined, the tufts are hard, somewhat glistening, do not expand when placed under water, and under the microscope are seen filled with oil-globules. Inflammation is not the only cause of this morbid change. Dr. Druitt supposes that, to a limited extent, it always takes place; and that, in the healthy placenta at birth, some traces of it may be observed. If there be a deficient formative force in the ovum, if the maternal blood do not communicate sufficient nutrition, this change in the villi of the placenta is the result; and the rupture of the vessels, hæmorrhage, and abortion, the consequence. Hence "the habit of aborting" may simply mean the inability of the constitution to meet the demand made upon it; and the only mode of arresting the habit must be by sustaining constitutional vigour. Any effort for this purpose is counteracted by frequent conceptions. If the demand be again and again repeated, the result must be the same, and "the habit" become incurable: but, along with general tonic treatment, if the patient remain separate until there is sufficient evidence that her health is restored, then by ordinary caution this habit may be arrested.

Fatty degeneration may be a much more frequent cause of abortion than is generally supposed, and should always be sought for in unexplained cases. It is very seldom in such instances, that the placenta or chorion is submitted to the microscope, which is necessary, in order to determine this cause. Abortion may not take place; and yet the development of the ovum may be arrested. The fatty degeneration proceeds; the membranes are thickened; and ultimately a firm, fatty, fleshy-looking mass is formed, which may be expelled months after the arrest of development has taken place; it is then called a mole. We once observed, in a placenta expelled after ordinary labour, a portion which had undergone this fatty change; it was of about the size and shape

of a small kidney. The child was rather small, but otherwise healthy.

Diseases of the Ferus are as yet imperfectly understood.

Arests of development and deformities are the results of disease

the membranes of the ovum; but, independently of this, the

tens itself may be the subject of disease. Poisons, for instance,

my be communicated to it, and produce their malignant effects.

Of these the most remarkable is the—

Syphilitic Poison, the insidious character of which is so well been. The ovum may be destroyed by it and expelled within the first month; or it may not show its influence until just before lith, when the death and what is called "the putrescency" of the beautiful takes place. These terms "putrescency" and "putrid" to not express correctly the changes which occur. The cuticle trainly desquamates, as in putrescency; but this desquamation to been observed in the living child, and depends upon a different mass. It is questionable also, whether those changes produced the body after death, arising from the action of the air and the elements which cause its decomposition, could take place there their influence is removed. Putrescency of the feetus we then therefore, to mean the destruction of its tissues by poison.

The first effect of the syphilitic poison is on the integument. The colour gradually becomes a dark red; before this takes have cuticle desquamates from the extremities, which are stands; the cuticle desquamates from the extremities, which are stands; the abdomen swells up; and, if examined, creamy stands are the abdomen swells up; and, if examined, creamy stands are the abdomen swells up; and, if examined, creamy stands are the abdomen swells up; and, if examined, creamy stands are the abdomen swells up; and, if examined, creamy stands and puerperal fever in the abdult. A general softening of the stands then takes place; and, if not previously expelled from the stands the whole may be removed by absorption, except the stands. A case of twins once presented itself to our notice, in this the skeleton of one child (about the sixth month) was found at membranes of the placenta of a child delivered at the full was this the last remains of a putrid child destroyed by a stands the full approach to the skeletion presents this difficulty. It assumes a second selection in a poison—in a case of twins, one child is

destroyed, the other escapes, although both a the same blood. Yet poisons certainly exert a The puerperal and typhus poisons do indifferently: certain constitutions yield; others r In the case of twins, therefore, may it be that formative force explains such a result? and that, jus a large healthy twin is born with another small a the poison may seize and destroy the weaker, wh vigorous escapes ? The fœtus affected with syphilitic poison generally

characters described; and, if the condition be recogn may be adopted to check its progress. A lady who had l miscarriages once came under our notice. carried at the fifth month. The feetus was "putri syphilis was assigned as the cause. was placed for a short time under the influence of n which was resumed when she became again pregnant carried the child to the seventh month: labour came of expelled a putrid child. carried the child to the full term. In this following prega the child was born living at the ninth month; but with hands and feet livid, the cuticle desquamating.

destructive course of the poison was gradually arrested. One of the most difficult and delicate questions which fessional man can be asked springs out of these appears Is syphilis the cause of the state of the fœtus? There are in which the lady is totally above suspicion, and has no evidence of the lady is totally above suspicion, and has no evidence of the lady is totally above suspicion. of infection. The gentleman, perhaps, is not so much so. may have had the disease; but it has left him for some in and there are no symptoms that it has been communicated. therefore, such morbid changes be the result of syphilis. poison must have lingered in the blood long after its usual can on the tissues had disappeared. There is, therefore, a difficulty in connecting cause and effect. This is increased by a history of these cases.

Professor Simpson, in his valuable papers on "Peritonitis the Fostus," quotes some cases (Cases V. IX.) in which the history

and the appearances point rather to a poison than to inflammation their cause. In Case V., a girl, aged nineteen, was delivered in the Lock Hospital, having had four different attacks of syphilis. was delivered of a putrid child. " The cuticle was loose and enly separated; the cavities of the pleura and pericardium were fled with a reddish serous effusion . . . The cavity of the peritoneum contained upwards of an ounce of a still deeper coloured reddish smus effusion . . . A considerable portion of the liver was much engested, more deeply coloured and softer than the remainder the viscus. The gall-bladder was filled with a quantity of field bile, and its coats thickened to about a line and a half or to lines by serous effusion. The surface of the abdominal peributum was coated by a beautiful lace-like and adherent layer of coagulable lymph, which was of considerable thickness at points, and threw out long lines or fibres that were in stact with the surface of several of these abdominal viscera, but not in any place adherent to them." (Simpson's Obstetric Works, vol. ii. p. 188.) In Case IX., a of girl eighteen, also in Lock Hospital, suffering from severe gonorrhœa and who had remains of a chronic syphilic eruption on the skin, aborted between the fourth and fifth months. The external appearance of trus is not described; but the peritoneal cavity contained tonsiderable quantity of serous effusion, having numerous bonli and shreds of coagulable lymph floating in it. Patches and small masses of this lymph were deposited in considerable budance upon the peritoneum covering the abdominal parietes and different abdominal viscera, but " nowhere did we find any of is exudation adherent to the serous surface." (Op. cit. p. 162.) In an extensive deep reddish-coloured effusion, a softening of tasues, a lymph-like non-adhesive exudation in the serous bloces, all characterise the action of a poison, the presence of thish the history of the cases seems to confirm, because there was beficulty in connecting cause and effect. The close resem-Vacce of the exudation to that observed in puerperal fever-the an plastic lymph of a poison—is also remarkable.

These cases may be contrasted with Professor Simpson's first of peritonitis, which is extremely interesting as having been

a case of twins; one child was born living, the other dead from intra-uterine peritonitis.

CASE I. - "On the morning of the 15th October, 1836, Dr. Simpson's attendance was requested at the Lying-in-Hospital in a case of twins. The first child was living, healthy, and wellformed: the second had apparently been dead for some days; its cuticle could be easily peeled off, and was raised into bullæ at various parts by a sero-sanguinolent effusion beneath it. Its body was, however, by no means emaciated, but as plump and fat as that of the first child. Professor Simpson, finding no appearances in the placenta to account for its death, made a post mortem examination. There was a considerable accumulation of serous and sero-sanguinolent effusion in the cellular tissue in different parts of the body, and in the cavities of the pleura, pericardium, and peritoneum. Over the surface of the last-mentioned membrane (the peritoneum), there were also deposited several isolated patches of soft coagulated lymph, which had produced at various points adhesion of the folds of the intestines to one another and to the internal serous surface of the abdominal parietes. In this case, the consistence and other characters of the effused coagulable lymph were such as sufficiently indicated that it was the result of recent and acute peritoneal inflammation." (Op. cit. p. 155.) True peritonitis may take place in the fœtus; and also false peritonitis, the result of a poison, just as in puerperal fever; but, in the former case, the general discoloration of the skin and softening of the tissues are absent.

In those cases of severe labour in which the death of the child takes place, decomposition follows; the membranes are ruptured; the air is admitted; and true putrescency takes place if the child be left sufficiently long for the purpose. The few cases of this kind which have come under our notice did not present exactly the same kind of discoloration of the integument and softening observed in syphilitic cases. There was desquamation of the cuticle in both; there was not the same dusky red hue over the skin; the appearances rather resembled those observed in the adult under similar circumstances.

Hence, in answering the proposed question as to the cause of

the the peculiar colour of the integument will be a guide; and the non-plastic exudation be found in the peritoneum, and the sates be generally softened, the evidence is in favour of a pion as a cause; but we must bear in mind that inflammation of the peritoneum may also cause death, followed by certain post artem changes which should not be confounded with toxemic appearances. The answer therefore should not be given, until a careful post mortem examination is made. In any case where, in the constitution, a mild mercurial treatment, accompanied by tonics, will frequently arrest in progress, and save the child.

ABORTION AND MISCARRIAGE.—Any diseases, whether existing in the membranes or in the feetus, lead to a separation between the wum and the uterus, and hence are among the chief causes of abortion or miscarriage. It is not easy to detach the healthy wum from the uterus. Pregnant women have met with the most erious accidents without aborting; even those enfeebled by disease—as phthisis—have gone their full time, the progress of their malady being arrested by pregnancy. Hence, when sudden shocks, falls, and such like accidents, are stated as producing abortion, they are much more likely to be secondary than primary causes. The ovum being diseased and prepared to separate, an accident, perhaps of the most trifling character—a fit of laughter—will be sufficient for the result.

Abortion, miscarriage, premature labour, are terms intended to express the time at which the separation takes place. When the ovum is detached before the fourth month, when the placenta and the form of the foctus are imperfect, it is called Abortion. If it take place between the fourth and seventh month, or before the period at which a living child can be born, Miscarriage is the term applied; and Premature Labour signifies the delivery of a tiable child.

Abortion most frequently takes place within the first three months of gestation. It may be preceded by severe pains or by hamorrhage; perhaps by both. If pains alone give evidence, it may be possible to save the ovum. Perfect rest, anodynes, and

this we have already considered. DISEASES OF that is incurred by premature labour. is not prepared in the same way to Jri uterus, nor is that action as uniform at Period; therefore in these cases the actio. one time violent, and again suspended. small, and requires but little force to exp regular pains are sufficient for the purpose. hemorrhage, especially unavoidable, is likely we shall consider hereafter. In connection with this branch of our subjection some questions for consideration which are inter a physiological than in a practical point of view. SUPERFUTATION AND EXTRA-UTERINE PREGNA SUPERICIATION has received ample discussion. enter into it further than to state, that the question is found in the control of the fact of remarkable differences observed in twin-births, ine a full-crown and an undeveloped fuctus, a white and a the a numerown and an undereloped decus, a white and a child, dec.; hence it has been assumed that a second companion of the contract of the c followed the first. There are assumed that a second companion of the first and the first are also some extraordinary interest. of a second child being delivered some months after the first Differences in the appearance of twins in respect to their Tolophient prove nothing, because there is abundant eria that or entering the womb at the same time are perm independent of each other. One may be diseased, amag 900. doctr.

development being the consequence; and the other may Realthy. Differences of colour cannot be explained in the only cases on record of this kind were the real intercourse with a black and a white man following in immediate the kind in immediate th succession. interval between the two connections was of any duration. In the two connections was of any duration. In There is no recorded case of this kind in which is Orum occupies some days before it enters the womb; and has orum occupies some casts descond conception in these casts The third class of cases are more difficult of explanation Maton Published in the Transact. of the College of Physics. T., an Italian I. in prog (rol. ir.) the following case. "Mrs. T., an Italian 1... May or milio to & GFUE the into This Ge

an Englishman was delivered of a male child at Palermo, Nov. 11, 1807. . . . On the 2nd of February, 1808, she was learned of a second male infant. Both children were born wiet." There is here an interval of three months between the in of the children. Is it to be explained by a second concepin it three months' interval? Other explanations have been and; the unequal development of twins-the second arriving amounty three months after the first; a double uterus-each mity expelling its contents at different intervals; but the most and plausible is that of Dr. M. Duncan, who believes inta second impregnation of ova may take place, so long as the temmication between the vagina and ovary is free; and, inasbut the decidua reflexa does not come into contact with the with vera until the third month, it is only then closed. Nohowever, is said with regard to the condition of the uterus cases; whether its action may be suspended after the applion of a portion of its contents, to be renewed at any given it is perfectly well known, that twins are frequently exat intervals of hours and days, during which time the aim of the uterus is quite suspended. May there not be an rare exception, where this suspension exists for Cases of protracted gestation have occurred, in which the uterus commenced at the ninth month, was sepended, and did not return for weeks-or even monthsderards. (pp. 82-7.) Hence, we do not think the cases med sufficient to prove absolutely the truth of superfectation; a against which there are very strong physical objections. ETRA-UTERINE PREGNANCY .- An ovum is sometimes arrested in Pogress from the ovary to the uterus ; it may be retained in the or in its passage through the Fallopian tubes; or even thewalls of the uterus. This causes no arrest of development; to orum goes on to increase, converting the ovary or Fallopian into a kind of uterus. Hence the terms Ovarian Gestation, Med Gestation, and Interstitial Gestation, or that within the walls be uterus. Ventral Gestation is also mentioned, signifying the ovum has escaped from the fimbria of the Fallopian

and, arriving in the abdominal cavity, is developed there.

This view has however been, we think, refuted by Dr. Campbell who considers such cases to be only ovarian or tubal gestations in which the walls of the cyst have given way. These accidents are rare. A case of *Ovarian* gestation is related by Dr. Campbell as occurring in the practice of Dr. Granville. *Tubal* gestation is more frequent. *Interstitial* gestation is the rarest form.

The Symptoms may be best understood by the relation of a case which, many years ago, came under our notice.

A woman, believing herself pregnant in the usual manner, entered the Dublin Lying-in Hospital to be confined. She did so because of her pains; but, on examination, the os uteri was quite undeveloped and rather pushed aside; and an undefined tumour was felt on the left side, evidently part of that in the abdomen. Auscultation was tried, and the fætal heart was distinctly heard, much more plainly than usual. The placental murmur was not so distinct; it was a confused uncertain sound In every respect this woman's health had been good. The abdomen gradually enlarged; and she believed herself pregnant; the menses, however, had not quite ceased-they returned irregularly; but when she felt the motions of the child she was satisfied. She remained in the Hospital only a few days, when the pains returned, and sudden collapse took place. After death, the child was found dead in the peritoned cavity, surrounded by an immense quantity of coagula. The Fallopian tube, converted into a large cyst, had burst.

The Treatment of such cases is out of our reach. Death is generally the result; but a few instances are recorded where the patient survived, and the child remained in the abdomen for years. Dr. Campbell records seventy-five cases in which the feetus was retained at different periods from two months to fifty-six years! Usually the child becomes putrid; an abscess is formed, and bursts either at the umbilicus or in the vagina or rectum, discharging the morbid fragments. Lastly, the bones are removed.

# SECOND DIVISION .- PARTURITION.

#### LECTURE IX.

THE FEMALE PELVIS; ITS ANATOMY, AND RELATION TO THE FETAL HEAD.

The first subject to which we shall direct attention in this twison is the anatomy of the pelvis, so far as it is connected the process of parturition. It would be unnecessary to mer minutely into its descriptive anatomy; we shall dwell only these points that are connected with practical midwifery. In sense, it will require particular attention. The difficulties, stretimes almost insuperable, which occur in the process of parturition, arise most frequently from the disproportion that mits between the head of the child and the space through which the to pass. The source of many of these difficulties is in the wis; and the irregularities in its shape are among the most squent causes of difficult labour. Independently of this, the beautiful mechanism which Nature adopts in the passage of the hild through this bony cavity, requires an accurate knowledge of its anatomy, in order to understand the perfection of the cotrivance.

Finne Bones.—The bones of the pelvis are three: two Coxal or the Bones, and the Sacrum with its appendix the Coccyx. In the period: consequently, the older anatomists have been in the labit of describing it as consisting of three bones—the ilium, the labit of describing it as consisting of three bones—the ilium, the labit of describing it as consisting of three bones—the ilium, the labit of describing it as consisting of three bones—the ilium, the labit of describing it as consisting of three bones as one, consisting of an labit of the labit of

The Riac Portion is much the largest, and is divided into two
uts by a well-defined line of demarcation, which is a continua-

tion of the linea ileo-pectinea, and termi articulation. Superior to this line is th internal surface of a broad irregular port times called the ala of the pelvis: it belo cavity. This portion is completely surrou ful muscles. The iliac muscles are attac surface, the gluteal to its external; and into : the muscles of the abdominal parietes. common point of attachment to muscles of necessarily very irregular both in its shape a crest is rough and waving, the centre of the 1 and sometimes even diaphanous. In the female expanded than in the male, gives a greater bre and, being sufficiently conspicuous, it is often ta of the proportion of the pelvis itself; here, howeve be very readily committed, inasmuch as the c narrow, and yet the alse of the pelvis very much greater breadth is obviously very advantageou increasing uterus begins to occupy the abdomina the well-formed pelvis, the distance from one an

spinous process to the opposite is about ten inches. The inferior portion forms a part of the true pelvic principally consists of the Ischium. bounded by the obturator foramen on the one side ischiatic foramen on the other: it is smooth, and corre the acetabulum on the external surface. (in obstetric language) the plane of the ischium, because of the child glides upon it in its descent, and passes under the pubic arch; but, if carefully examined, it found to consist of two planes very slightly inclined in directions, and divided by a line passing from the pectine nence to the spine of the ischium. In some pelves, this is obvious than in others; but when the soft parts are att this will be found nearly corresponding to the reflexions o peritoneum which form the broad ligaments. Thus the i nal surface of the ischium, before the soft parts are remo presents two broadly curved surfaces, one anterior, the or cior; these greatly contribute to facilitate the rotation of



head of the child in passing through the pelvic cavity. The ior plane terminates at the obturator foramen, an opening ly filled with membrane, giving support to the internal and rnal obturator muscles, and offering less resistance to the - - The mance of the head forwards than if it consisted of bone. The rator foramen is bounded by the ischio-pubic ramus, the of the pubic arch. It presents a smooth surface, elled off towards the arch; and when the head passes from obturator foramen, this inclination greatly assists its exit The posterior plane terminates in ischiatic foramen, and the portion of the head which comes it glides in a similar manner upon the coccygeus and midal muscles, and shorter sacro-ischiatic ligament, towards hollow of the sacrum. Thus the inclinations of these faces oblige the head to pass through the pelvic cavity in a

Fig. 26. Vertical section of pelvis, showing the anterior and posterior. faces of the plane of the ischium. The lines represent the inclined plane the promontory—plane of the brim—of the cavity—of the outlet.

128 spiral direction. THE FEMAL its internal surface, which also grea The only remaining points connec your notice, are the spine and tuber of is attached the inner short sacro-isel the head glides into the hollow of the important that it should present no im and being short, rather rounded and smo it does not do so; but if it be much set attached to it, new osseous matter is increases in length, becomes rough, and inwards, and thus will present an obstacle the head. From a similar cause, the tuber the escape of the head from the outlet of the enlarged by increased deposition of bone. are met with only when the pelvis is surroun constantly exercised muscles; and therefore the frequently among a healthy, vigorous, rustic pe towns or manufacturing districts. But in the similar impediment may arise from a cause of a site character, wherein the pelvis becomes diseas matter diminished, and the spines and tuberosities o are pressed too close together. The next bone to which I shall direct your atter Sacrum. This bone is placed between, and is very fil the two other bones: it forms a kind of key-su pelvic arch, upon which the spinal column rests. It surface is extremely rough, and gives insertion to the m erful muscles of the back; the internal is smooth, an what is called, in obstetric language, the hollow of the The curvature of the sacrum, which forms this hollow, is of attention: it varies very much in different pelves; if it b straight, the antero-posterior space of the Pelvic cavity is d nished; if it be too abruptly curved, the coccygeal extres resists the progress of the head. That portion of the bone, however, which has received m attention, is distinguished by the remarkable title of the prom

try of the sacrum, a term used by the older authors, and a unficient evidence of the frequent instances in which the difficulty of labour has been attributed to this projecting point. It is after the intervertebral cartilage which unites the sacrum to the last lumbar vertebra that forms the projection, than the appear of the sacrum; and therefore the promontory is a little above the sacrum, or rather, the sacrum is its inferior tendary. The opposite extremity of the sacrum terminates in the Coccyx; which, in the female pelvis, is generally moveable, and by its mobility contributes to increase the outlet of the partia, when necessary to parturition. If, unfortunately, ossification should take place between it and the sacrum, great difficulty is necessarily produced; but this accident is very rare in the healthy pelvis during the parturient period.

Privic Articulations. Let us now consider the manner which the bones that constitute the pelvis are united. But provision is made to secure strength, and at the same the to avoid the effects of concussion. In this respect, the constitute of the coxal bones to each other affords a very perfect curple.

The Symphysis Pubis consists of a mass of highly elastic fibroordisce, arranged in concentric laminæ, the outer layers firm and resisting, while those within are softer; and in because of them is placed a small arthrodial articulating surmoistened with a portion of synovial fluid. The shocks to the pelvis is liable in the more violent motions of the by, as in leaping, especially downwards, are all more or less mentrated upon the symphysis pubis, and hence a provision this kind is necessary. In the female pelvis, by its greater adth, the space between the pubic portions of the coxal bones screased, and at the same time, a perfectly smooth surface resented posteriorly to the head. If, unfortunately, the rethe should take place, if the symphysis were narrow, and still if it were made rough from ossific depositions, serious y might be done to the soft parts lying between it and the ; and, as the urethra lies in this position, the risk that

THE PEMALE PELVIS. might occur is obvious. physis pubis should be broader and smoother in the in the male pelvis. The Sacro-iliac Articulation is remarkable in its

preserve immobility. The articulating surfaces of and ilium are so adapted to each other, or, if I m expression, so dove-tailed on one another, as when p ther not to admit of the least motion. in the dried bones; but, when in the recent state, we t cartilage intervening, the articulation surrounded by the ligaments, and additional strength given by the tending pansion of the neighbouring muscles, we at once per the provision that is made to prevent disturbance, portance of preserving the main of the secrum and con-When we recollect the relative position of the sacrum, stone of the arch we have described, the centre upon which spinal column rests, the wedge which keeps the cond apart, and of course the point of resistance to any force

to compress these bones, (as the lower extremities need would, if not in this way prevented), we can understand compact and firm articulation is so essential. Sacro-coccygeal Joint. The inferior extremity of the is united to the coccyx by a fibro-cartileginous lamins is to the intervertebral cartilages, and by anterior and po This articulation, as well as those connecting small bones of the coccyx together, admits a certain end motion of one bone upon the other, so that the coccyr

being curved may be rendered nearly straight—a highly a advantage in the female pelvis. Lumbo-Sacral Articulation. is united to the last lumbar vertebra by an intervertebral Bal cartilage, which differs from the others in being much de ine before than behind; the aspects of the two articulating sur alog are consequently oblique to each other, and the cartilage pre-**6**00 E anteriorly a broad surface which, strictly speaking, forms vide, is called the promontory of the sacrum. benez prominent point of the spinal column anteriorly, the b th **Meru** It is the 1 bry **&** 11

weight of which rests upon it; and this part would necessarily be pressed forward, if the pelvis were weakened by disease.

The Pelvis. Having thus given a detailed description of the several bones composing the pelvis, and of the manner in which they are united together, we shall consider the pelvis collectively. It is divided into two portions by the line already alluded to, a continuation of the linea ilio-pectinea on each side, passing the lower margin of the iliac fossa, and terminating at the arrum: this is the brim of the pelvis, which in the older language of midwifery was called by the English term, "basin" and "brim of the basin;" a term which included not merely the line described, but the parts of the ilia above it. These trisions have been called by different names,—"the greater and the lesser pelvis," "the true and the false pelvis." Sometimes the whole portion above the line is still called "the brim," will that below it "the cavity," of the pelvis.

It is more important, however, to recollect that the superior pertion belongs to, and forms part of, the inferior boundary of the abdomen, and must be taken in connection with it: the axis of this part of the pelvis is therefore the same as that of the abdo-The pelvis, and consequently the abdomen, are wider here the female than in the male, in order to accommodate the when it becomes an abdominal viscus. It may, however, to wide or too narrow. If the ilia (the alæ of the pelvis) be seen, they give no support to the uterus when it enters the blomen; the natural obliquity of the uterus is therefore greatly are sed-it falls too much to one side, and so may remain wil labour begins, and then the action of the uterus becomes brular and inefficient, and labour is delayed from this cause if they be very upright, the uterus rises into the abdomen much in the middle line of the body. If the brim be too the weight of the uterus presses down on the soft parts bath it—it may descend even into the vagina, and give rise the disease called prolapsus uteri: if it be too narrow, the s has not room to pass between the pubis and the promonof the sacrum, irritation takes place, premature action of suscular fibres is induced, and miscarriage is the result.

THE FENALE PE.

Thus you see that even here exactness of But this is still more remarkably the c the "pelvic cavity," or "true pelvis," th of the child has to pass: it will therefore examination. genito-urinary organs, is bounded above 1 pelvis, below by the tubera ischiorum and co posterior surfaces of the bodies of the Pubic but necting symphysis, the obturator spaces, and rami, form its anterior wall; the sacrum and is the posterior boundary; and the planes of the described, constitute its sides. A very imperfect ic is formed if it be confined to the dried pelvis: it consider the empty spaces lest in the bones as b with the soft parts which belong to them, in order accurate notion of it. In the recent pelvis, therefore, we find, in the at each obturator space occupied by fibrous membrane, t

obturator muscle is attached, leaving a small opening the transmission of the obturator nerves and vesse muscle is concealed by the levator ani, and both are et fibrous membrane; so that in this space a kind of a cushion is formed for the head, as it advances into the c the pelvis. Immediately below the symphysis lies the su ligament; and beneath it a continuation of the same t membrane, giving passage to the urethra. In the posterior wall, on each side, the ischiatic not

converted into a foramen by the lesser sacro-ischiatic ligamen which unites the sacrum to the spine of the ischium; and a see opening is formed by the greater sacro-ischiatic ligament, wir passes from the sacrum to the tuher ischii. The larger are ischiatic foramen is occupied by the pyriform muscle, by thick branches of the sacral plexus of nerves which converge form the great sciatic nerve, and by the gluteal and ischie vessels. The smaller foramen is filled by the tendon of the turator muscle, and by the pubic vessels; but, lying in a plan

posterior to the former, it is rather withdrawn from the cavity of the pelvis. The sides of the posterior wall of the pelvic cavity present also, to the advancing head of the child, a muscular cushion similar to the anterior. The planes of the ischia form the sides of the cavity; and the aspect which they present, their double inclination anteriorly and posteriorly, shew the effect which this must have on a body passing along their surface,-that it cannot preserve the same direction, but must necessarily be rotated slightly as it advances. If, for instance, we assume that the head is so placed that it enters the pelvic cavity nearly transversely, with the occiput corresponding to the plane of the left ischium, and the sinciput to that of the right,-if the occiput descend on the anterior plane, it is directed forwards toward the obturator space, while the sinciput, gliding along the posterior plane of the opposite side, is directed backward to the ischiatic space; thus slightly altering from the transverse to the antero-posterior direction. As the head descends still lower in the cavity of the pelvis, a meets anteriorly the ischio-pubic ramus, and posteriorly the mer short sacro-ischiatic ligament; the former is so bevelled that the occiput glides from it under the pubic arch, while the latter forms a smooth inclined plane upon which the sinciput passes into the hollow of the sacrum. When this is accomplished, the head will lie in the antero-posterior direction; so that, if it oter in the direction which has been supposed, it cannot pass brough the pelvic cavity without performing a rotation.

Let us now consider whether, when the head enters the pelvic civity, it is placed in the manner which has been assumed. This leds us to examine what is called the Brim of the Pelvis. The laps of the brim in the dried female pelvis is rather elliptic, the large axis being its transverse measurement; consequently the later affords more room to the head when it enters it in the massverse than in any other direction. But this applies only to be denuded bones. If we examine the brim in the recent state, we find it not elliptic but triangular; the psome muscles form the likes; the promontory of the sacrum, the apex; the base being the anterior portion of the pelvis, lying between the pectineal minences on each side; hence the greatest space of the brim

THE FEMALE attention. It has been measured over pelvis; very ingenious instruments h purpose of measuring it in the recent every attempt has been made to de beforehand, when the head can pass, at Measuring the pelvis in this way, and serve our purpose in detecting pelvic de proportion is great; but it is very quest enable us to discriminate those slighter de which are so often the causes of delay and tion. It is not, therefore, with this object i direct your attention to these measurement purpose of still further illustrating the accided to, as well as of pointing out that i brom and outlet are not the only difficultie pehis. Princ Ares. Let us first consider the axes

it be supposed that the brim of the pelvis is a I that a straight line passes perpendicularly through is continued on both sides, this line would touc the sacrum near the coccyx in one direction, and below the umbilious in the other. This is called Plus line intersects and forms a more or les with the perpendicular of the body; the angle is a but it may be much greater: sometimes it is less. has a different axis, which would be represented by ing downwards and forwards from a point below the of the sacrum nearly in the direction of the vagina; I is oursed, it would be more correct to describe it as to they of the vagina, and passing out through the cen janmenn. These lines intersect each other; and, in o the head should pass from one axis into the other, describe a curve from above downwards, which takes place the exciput rests upon the pubic arch.

We shall consider the pelvis as consisting several of planes taken from above downwards, having dit asyeves and different measurements.

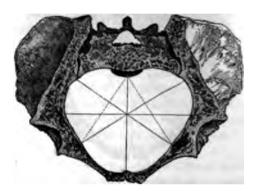
order. This force of distension is so great that the perinæum wald seldom be preserved from laceration, if nature did not adopt other provisions to prevent such an accident. Even in the last formed pelvis, the outlet is narrow, and affords but little pace for the head to pass; you can therefore readily perceive the difficulties which must arise, if there be any diminution of transverse measurement.

MEASUREMENT OF THE PELVIS. - The passage of the head though the pelvis shews mechanical contrivance in the construcion of the latter. The more it is examined, the more perfect mechanism will be found. The human head is larger in reportion to the size of the offspring than that of any other and, in consequence of man's erect position, the cavity and outlet of the pelvis are more closed in, for the purpose of emorting the weight of the viscera above. The head being are and the pelvis narrow, every contrivance that nature can tion is essential to accomplish her purpose; and also the propertions between both must be so exact, that the slightest deviain becomes an obstacle. Hence obstetricians, even from an by period, knowing the importance of accuracy in these propartions, have endeavoured to reduce them to a standard of beautement. They have sought to ascertain the dimensions of be perfectly formed pelvis; and, that having been fixed upon the normal standard, it has been supposed that every deviation hm it would explain one or other of the difficulties which may met with. How far this is possible, we shall have again to maider; at present let us observe the manner in which the surements have been made. Every impediment to the rege of the head seems to have been referred to two sources wither to irregularity of the brim, or to narrowing of the outlet. bearly all the popular works on Midwifery, these are the only In that are measured; and, consequently, all difficulties are unbated to their irregularities. As the brim seems to be commonly at fault, it has received a proportionate share of

<sup>\*</sup> Dr. Churchill's valuable little work is, however, an exception.

same part was applied in the same way to the least quite easily. Hence, in the same patient, to be difficult and another easy, merely from the act of the head.





The second is the plane of the brim, of which the sposterior measurement, from the centre of the upper edge sacrum to the top of the symphysis pubis, is about 4 in the transverse, from the centre of one ilium to that of the is 5½ inches; and the two oblique measurements, passing each pectineal eminence to the sacro-iliac articulation opposite side, about 5 inches.

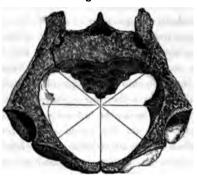
We have next the plane of the cavity, one most get omitted, and perhaps the most important of the three antero-posterior measurement of this plane passes from imme below the symphysis pubis, parallel to that of the brim, a backwards to a point above the middle of the sacrum; it is 4½ inches. The transverse diameter passes from the ce the plane of one ischium to that of the other, and is 4½

<sup>•</sup> Fig. 28. Inferior surface of same section, showing the anterotransverse, and oblique measurements of the brim of the pelvis. The lines represent the lateral measurements of the inclined plane.

oblique lies between the centres of those muscular masses.

Ill up the obturator and ischiatic spaces. Their measureuncertain, but is more than 5 inches.





outlet cannot be considered as a plane. Its antero-posteeasurement is taken from below the symphysis pubis to remity of the coccyx, and, when the coccyx is extended, is

Fig. 30.†



4j inches. The transverse measurement between the of the ischia lies above this, and is about the same; so

<sup>. 29.</sup> Remaining section of pelvis, showing the antero-poster for, se, and oblique measurements of cavity.

<sup>. 30.</sup> Outlet of pelvis.

that, when the head is pressing through the o pretty accurate circle round it.

Comparing the plane of the brim with the plane we see that the transverse measurement of the ca ished, while the antero-posterior and oblique dist creased; and that the oblique lines of the cavity app to the antero-posterior direction than those of the pelvis. Hence, when the head passes from the bri cavity, always seeking the widest space, it first n the oblique of the brim into the oblique of the cavity, descends, is obliged, from the convergence of the pla ischium, still more to assume the antero-posterior direct the occiput escaping under the pubic arch, it become this position: then the second rotation of the head from forward commences, the transverse measurements of the corresponding to the transverse of the outlet, and the long passing out in the antero-posterior measurement of the or

In stating to you these measurements as being those: standard pelvis, I am very far from wishing to convey: that they are constant or immutable: on the contrary, rail find, when you examine these points for your own satisfied that the pelvis is no exception to natural objects in ge and that it agrees with them perfectly in this principle, that of the same kind are never exactly alike; when you study is are accustomed to observe it, you will find as much different the pelves as you would in the faces of those to whom the longed; and therefore, where no two pelves exactly am would be impossible to fix a standard: consequently, the surements given must only be considered as a kind of mean which there are numerous exceptions. In order to demonst this in a clearer light, you have before you a table of men ments of several pelves, all well formed, and through which head of the child would readily pass, but no two of them and

It is here assumed that the pubic angle is sufficiently wide to allow occiput to pass completely under the arch, and to place the head is

we also before you the measurements of the pelvis given erent popular authors.\*

transverse space of the outlet is sometimes measured differso that the whole space within the ischio-pubic rami may uded; that is, by making the symphysis pubis the centre of e, of which these pillars (as they are sometimes called) are ii. The arc of the circle is measured in degrees, which, of e, gives the angle at the symphysis pubis. The pubic in the standard pelvis is 90°. Other measurements are given, are not of equal importance. The depth of the cavity, any, posteriorly, and laterally, is stated thus by Dr. Burns:—of symphysis, 1½ inches; depth of sacrum, 5 to 6 inches; of ischium, 3½ inches.

the description given of the pelvis, it has been explained from its construction, the head must rotate first laterally, en in the antero-posterior direction, before it is expelled. however, are not the only motions of the head in its te through that cavity; there are others which still further ate mechanical contrivance, and which deserve attention. alluding to these, however, we would wish it to be underthat, when we speak of the head passing through the pelvis, at in a certain direction, we do not mean that this is contribe case: on the contrary, the head may enter the pelvis in tent position; and sometimes the breech or the foot passes. It is only for the purpose of illustration, that we would be the head as the presenting part, as it is called obstetriand its position as uniform; the variety of these positions, he mode of ascertaining them, will come under our consi-

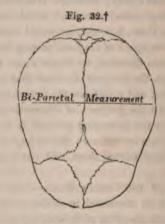
asurement of the Child's Head.—Like the pelvis, the head has been measured in different directions. There tree measurements given of its longitudinal axis. One from ciput, just above the neck, to the middle of the open memors space between the frontal and parietal bones called the

<sup>.</sup> Vide Tables placed at the end of this Lecture.

"bregma" or "anterior fontanelle," is generally about 31
Another passes horizontally from the most projecting point



occiput to the centre of the frontal bone, above and betwee superciliary ridges; this is usually 4½ inches. The thi



between the same point of the occiput and the centre of the this is  $5\frac{1}{8}$  inches. There are also three transverse measure

<sup>\*</sup> Fig. 31. Longitudinal measurements of the child's head. † Fig. 32. Transverse measurement of the child's head.

the is between the parietal protuberances, which is 3½ inches; which between the temporal fosse, which is from 2½ to 3 inches; attid between the zygomatic arches, which is from 3½ to 4 inche. Sometimes three distances are given from the chin, as a small point; one gives the length of the face and forehead (anto-frontal) 3½ inches; a second, from the chin to the bregma, stinches; a third, from the chin to the occiput, is rather more in 5 inches, as has been already stated. We have arranged in thus in a tabular form.

ha the Occiput.	In.	From the Chin.	In.	Transverse. I	n.
Omito-Bregmatic Omito-Frontal Omito-Mental	44	Mento-Frontal	31	Biparietal 3 Bitemporal 2 Bizygomatic 3	-3

The shortest of these measurements from the occiput in the partitudinal axis is the occipito-bregmatic; and when the head are the pelvis, which it does obliquely, this is made to correpted to the oblique measurements of the brim, by the anterior of the head being so pressed up that the chin rests upon the test of the child: but as the head descends into the cavity, and more space in the oblique and antero-posterior direction, to forehead advances more than the occiput, so that the occipito-test measurement corresponds nearly to the oblique of the saily. A little lower down, at the short sacro-ischiatic ligament, to forehead becomes a resting-point, and the occiput again test as obliquely along the ischio-pubic ramus until it emerges, with part of the parietal bone, under the pubic arch. The head strutore, in its descent, seems, as it were, to oscillate upon its test as a second seems.

The biparietal measurement of the head is generally stated to the point to the conjugate or antero-posterior axis of the brim; at the former is 3½ inches, the latter 4, only half an inch is sed for the soft parts, even in the best formed pelvis; consemtly, the least diminution of the conjugate axis causes a diffigurant, a greater one becomes an obstruction. Hence, among

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	MEASUREMENTS OF THE PELVIS STATED BY VARITHM AUTHORS, Inches.    December   Inches.
	MENTS OF THE PEL.  Barna, Monro, Inches, factor, 4, 5, 54, 6, 54 4, 5, 54, 6 4, 44, 54 4, 54, 64 4, 64, 64
	MEASUREA  Metro-posterior  Sero-posterior  OUTLET.  Sero-posterior  OUTLET.  Sero-posterior  General  OF Sarran  OF Sarran  OF Sarran  OF Plane of Ischium  PUBIC ARCH.  FALSE PELVIS.  Contrant of Cortesion  100
	Amtero-posterior  Chisque  Antero-posterior  Transverse  Outlett  Transverse  Oblique  Depth of Symphysis  of Sarum  of Sarum  of Plane of Ischium  Base  Pubic Arch  Base  Pubic Arch  Bate  Sides  False Pelvis.  Perpendicular  Ratise Pelvis.  Retrent Spines of Labina  Retrent Spines of Capina  Comme of Comme of Capina

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	Character of Polvia,	Normal (nearly).  Nearly normal (small),  Normal.  Rather small.  Irregular.  Very large.  Large, and like young Pelvis.  Large and normal.  Large and round.  Large but like male Pelvis.  Large, but ontet con- Large, but like male Pelvis.  Large, but like male Pelvis.
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R. P. E. Right pectineal eminences. † The oblique measurements of the cavity cannot be given in the dried bone. \* L. P. E. Left pectineal eminences.

may be to reduced to more Signed to the second of the se taken F. Art. 201, without entering the 24 Care if the series we know by experience The does not solve to experience of experien Carre is proposed. It sour watch the merus a the Facenta is detacted for will find contract the still going on a though slight in their degr tractions sometimes increase so as to become "all they are caucily Now, when the child, meeting ! from the pelvis, is suddenly expelled, the uterus m tions we person and contract, although the stimulus of in With the service there is a dancer of hamorrhage nic and if the trients (as is very probable) be thrown into m

contractions, a stricture may be formed at the certix me blord mar cont is into the uterine cavity, being recons clot formed atore the stricture; and thus a case of a hamorrhage may arise. Again, during pregnancy the may ressels are more pressed upon than usual, by the addition nterus in the abdominal cavity; the inelastic coats of the yield to this Pressure: and the column of blood in the ca large iliac veins is of necessity diminished; nevertheles in quantity of blood ascends through other channels to the When that pressure is suddenly removed, a most de syncope may follow: the circulation being suspended in quence of the right side of the heart being nearly empirical states of the side of the heart being nearly empirical states of the side of the heart being nearly empirical states of the side of the s venous blood. of this kind of pelvis, is inversion of the uterus. Another accident, which is sometimes the the uterus, inecting no opposition from the pelvis, sinks itself us the child is being expelled; it is sometimes tund pletely inside out, but more commonly the depressed fundal a kind of culp-shaped cavity at the top of the uterus: this Kularity immediately excites the fibres of the uterus into me Somewhat regunding intustisception of the intestines; the Mion of the findus is increased; and it is ultimately forced in state through the vagina. duite so welcours and reserved to per answer that and answer and answer to per answer that the second secon A very large pelvis is not, that

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### LECTURE X.

#### DEVIATIONS AND DEFORMITIES OF THE PELVIS.

In the preceding lecture, explained the structure of lvis, its obstetric characters, its normal proportions and the r in which the head of the child passes through it, we consider those numerous exceptions to the standard pelvis are so often met with, and which become causes of delay iculty in parturition. Some of these are only *Deviations* he just proportions of the pelvis; others are *Deformities*, the mence of disease. We shall therefore examine each class tely.

TATIONS.—The deviations or irregularities in the pelvis rious. It may be altogether too large, or too small; it mes retains its infantile shape, although increased to its ze; it may resemble the male pelvis; and, again, some one haps all, of its proportions may be irregular. All these irms may be met with in the healthy pelvis.

pelvis as this could never be a cause of delay in parturibut it may cause danger notwithstanding. For instance, the uterus is increased in its weight and size during pregand occupies the abdomen, the pelvis is its great t below; but if the latter be too large, the uterus presses he vagina, gradually inverting it; there are instances in it has passed quite through the vagina and thus appeared vulva, before labour commenced. But, although this may ppen, yet, when the vagina is at all distended and inverted manner, the foundation is laid for that troublesome prolapsus uteri. Hence the accoucheur, in such cases, very precaution after delivery to prevent the uterus from gupon the vagina, until this organ returns to its original

#### 148 DEVIATIONS AND DEFORMITIES OF THE PELVIS.

size. Another danger of a very large pelvis is, that the ch may be too suddenly expelled. In most cases of parturition, action of the uterus is continued a certain time before delive takes place; and, without entering into any inquiry as to cause of that action, we know by experience that, when once up, it does not suddenly cease, even when the immediate excit cause is removed. If you watch the uterus after labour wl the placenta is detached, you will find contractions and relact tions still going on, although slight in their degree; these co tractions sometimes increase so as to become "after-pains" they are called). Now, when the child, meeting no resistant from the pelvis, is suddenly expelled, the uterus may still co tinue to relax and contract, although the stimulus of the child withdrawn; hence there is a danger of hæmorrhage taking place and if the uterus (as is very probable) be thrown into irregul contractions, a stricture may be formed at the cervix uteri. T blood may only flow into the uterine cavity, being retained by clot formed above the stricture; and thus a case of interhæmorrhage may arise. Again, during pregnancy the abdomin vessels are more pressed upon than usual, by the addition of uterus in the abdominal cavity; the inelastic coats of the vel yield to this pressure; and the column of blood in the cava a large iliac veins is of necessity diminished; nevertheless the sar quantity of blood ascends through other channels to the hear When that pressure is suddenly removed, a most danger syncope may follow: the circulation being suspended in conquence of the right side of the heart being nearly emptied of venous blood. Another accident, which is sometimes the resi of this kind of pelvis, is inversion of the uterus. The fundus the uterus, meeting no opposition from the pelvis, sinks with itself as the child is being expelled; it is sometimes turned cor pletely inside out, but more commonly the depressed fundus for a kind of cup-shaped cavity at the top of the uterus: this in gularity immediately excites the fibres of the uterus into an acti somewhat resembling intussusception of the intestines; the inv sion of the fundus is increased; and it is ultimately forced in the state through the vagina. A very large pelvis is not, therefor quite so advantageous as it may appear to be.

Point too Small. The pelvis may be too small in proportion the size of the head of the child. A female who is welland may have all the bones small; she is consequently low in ture, but not disproportioned; and, although the pelvis bears ame relation to the rest of the skeleton that the standard wis does, still all the measurements of the former are less than blatter. The pelvis is diminished, but diminished equally in boy part. In such a case, a child of the average size would with great difficulty. Instances of this kind are rare, mouth sometimes met with. It would, however, be quite correct to assume that the pelvis must be small in females of watature; it is much more frequently the reverse, the bones of extremities, though diminished in length, are large, and so is epcivis; but in the instance referred to, the bones are not only but proportionately small, and the pelvis is of corresponddimensions; hence in this, as in other instances, an accurate decryation of the bones of the extremities will assist in forming a opinion of the pelvis. Again, sometimes the same kind of mall pelvis is met with in women of the average height. Dr. lighy quotes three such cases, from Busch's Berlin Reports, in of which labour terminated fatally. (Midwifery, p. 185.)

Arrested Development of Pelvis. If the pelvis be examined at the time of birth, its form is imperfect, its ossification is emplete, the viscera that properly belong to it are in the delimen, because there is no pelvic cavity. During childhood development is only slowly advancing; and the form of the evis is constantly undergoing alteration to the period of adosance, when it at length attains a tardy maturity. Thus the covering which protects the generative organs is not empleted, until the time when they are prepared to enter upon bir proper function. It is important, therefore, to attend to the sages going forward. In the infant pelvis the unfinished ilia be short, rounded, very patulous, and without any fossa. The rim of the pelvis looks almost directly forwards, in consequence the os pubis lying so much below the sacrum, that a line swing horizontally backwards from the symphysis pubis would through the extremity of the coccyx. The antero posterior measurement of the brim is the longest, the transverse shortest, just as in the lower animals. There is scarpelvic cavity; the ischia are closed in, and conseque tubers approximate, and the pubic arch is contracted the transverse measurement of the outlet is very small, antero-posterior is equally long, and almost parallel with the brim, so that the pelvis resembles in this respect als quadrupeds. From this extreme, a gradual change goes until the pelvis assumes its permanent character.

It may happen that this alteration of the pelvis is so in the middle of its progress, that no further change takes place, but the pelvis continues to increase, just a in monstrous fectuses an arrest of development at the six of gestation magnified into a monstrosity in the full-gro-Comparing for instance, the pelvis (fig. 34), which large, with the young pelvis (fig. 38), you will observe the blance between them; the antero-posterior measureme

Fig. 33.\*





Fig. 34.†

<sup>•</sup> Fig. 33. Child's pelvis.

<sup>†</sup> Fig. 34. Large female undeveloped pelvis.

in (5½ inches) longer than the transverse, the transverse of the proportionately diminished, and the cavity rather shallow. this pelvis is above the standard size; and any difficulty or in the passage of the head could only arise from the outlet incomplete. This also shows that the development of the may be arrested, although its size continues to increase.

An arrest of development may take place, and the growth also retarded. You may have in the adult woman the pelvis of girl, with all its proportions below the standard, but not irrenor deformed. This had been pointed out by Mr. Shaw e years ago (Medical Gazette, vol. xvi. p. 45.); and the ner in which it occurs is very clearly explained. growth of the whole body is not equal. In the infant, the d, thorax, and upper extremities are much more advanced in formation than the pelvis and lower limbs. In the adult, is the reverse; the latter exceed the former in their proporonate size. But if, from any cause (as rickets), the general eventh of the bones be retarded, the pelvis and lower limbs will t increase so rapidly as they should do; they will still retain mething of their immature character; consequently the pelvis be too small, although not deformed. The gorilla might be Considered an example of infantile development of monstrous rowth. The enormous power of the upper part of the body, compared with the evident want of power in the lower limbs, an exaggeration of this irregular development; and it is reerkable that the form of the pelvis is that of the infant, the entero-posterior measurement being the longest.

The development of the pelvis may be almost completed, and yet be too small for the passage of the head; and, as the difficulty may happen just at the time of puberty, it becomes an objection to early marriages. During the growth of the pelvis, the transverse and oblique measurements of the brim are constantly increasing and the outlet becoming wider; but they do not begin to exceed the antero-posterior until after puberty, as may be readily perceived in the altered shape and carriage of the female at that time. At puberty, therefore, these measurements may only equal the antero-posterior; the outlet, and perhaps the

## 152 DEVIATIONS AND DEFORMITIES OF THE PELV.

cavity, being still in diminished proportions. Hence the yegirl, although perfectly well formed, but pregnant at too ean age, may be the victim of a difficult labour.

Masculine Pelvis. Another deviation from the standard p is, when it assumes the character of the male pelvis; and as circumstance is much more frequently the cause of severe la

Fig. 35.\*



Fig. 36.†



<sup>\*</sup> Fig.35. The male pelvis.

tian is generally supposed, or at least than is stated, it deserves pricular attention. The contrast between these two pelves Fig. 35 and 36) must at once strike attention. The iliac bones I the male are more upright, the crista ilii is rougher and more wing, and the iliac fossa rather deeper. The brim of the whis is more triangular than in the female, in consequence of transverse measurement being less. Its axis is also directed upwards. The cavity is much deeper; anteriorly, the puphysis pubis is narrower and longer, often ossified; laterally, be planes of the ischia are closer to each other; and, posteriorly, te sacrum is longer, narrower, and rather straighter; hence it is mething like an obliquely truncated cone, inverted. The ischiowhice rami form a more acute angle, which measures generally httreen 60° and 70°. The tubera of the ischia are closer; and, the coccyx be much curved, the outlet of the pelvis is very men closed in. The male pelvis is also much more ossified, is consequently heavier than the female pelvis.

The cause of this difference may be understood, if we recolthe different circumstances in which each pelvis is placed, bi the law which seems to be observed in the growth of bone; that it bears a strict relation to the purpose which it is into fulfil. If it be for an osseous covering, its size correpoads exactly to the development of the organs it protects: thus alterations of the cranium keep pace with the varying byelopment of the brain; a deformity from sinking of the thorax sproduced when the lungs are compressed. If it be as a centre muscular action, it is strengthened and increased directly as sction of the muscles attached to it. Applying this rule to be pelvis, we find one organ, and that an important one, absent a the male which exists in the female: hence the pelvic cavity amover in the former. The pelvis is also the centre of the powerful muscular actions in the body; and where those modes are stronger, and are called more frequently into action, exert a proportionate influence upon the pelvis; therefore male pelvis is more ossified and heavier than the female, and a shape is such as will give its muscles points of insertion bust favourable to their action. Hence the distance between

## 154 DEVIATIONS AND DEFORMITIES OF THE PELVIS-

the opposite attachments of the same muscle is, as far possible, lessened; consequently in the male pelvis the ilia are more upright, and nearer to the linea alba; the acetabula are closer, in order to diminish the distance between the pelvis as centre of motion and the thigh-bones; and thus the pubic arch is narrower, and the ischiatic tuberosities closer, than in the female pelvis. If we have sufficiently explained this principle, let us consider for a moment how far the female pelvis might be influenced by it. It is true that the uterus is here contained; and therefore we cannot explain by its absence any narrowness of the pelvic cavity which may exist: nevertheless, if we suppose the muscles connected with the pelvis to be large, strong, and constantly exerted, the effect would be nearly the same; the acetabula would be drawn closer to the centre, the planes of the ischia would converge more; not, as in the diseased pelvis, protruding into the cavity, but by the bone in its growth adapting itself to the diminished distance. In a similar manner, the ilia would be more upright, and the pelvis of the female would gradually assume many of the characters of the male. Such is frequently the case with women in the rural districts, who are strong, healthy, and constantly employed from early youth in carrying weights, and in other active muscular exertions. The difficulties offered by such a pelvis are altogether different from those of the diseased pelvis; which, from all that is written on the subject, would seem to be the only source of all the embarrassments that are met with. The obstacles, therefore, which the female pelvis may present to the passage of the head, when it approaches the characters of the male pelvis, deserve attentive consideration. The triangular shape of the brim is not generally an impediment; because, although the transverse measurement is diminished, the oblique is sufficiently wide, and the head will usually pass into the cavity. But here all the difficulties seem to centre. Anteriorly, the symphysis pubis is narrower and more unyielding; even a deposition of bone is sometimes found behind it, which may be extremely dangerous, if the intervening soft parts be pressed against it by the head. Posteriorly, the promontory of the sacrum offers no opposition; but, the sacrum it-

being straighter, there is less facility in the head performing lateral rotation which has been already described. culty is still more increased by the convergence of the pubic rami: the head is obliged to descend much lower pelvic cavity before it can escape under the pubic arch, it is prevented from doing so in consequence of the being so much lessened by its funnel-shape. the tuberosities and spines of the ischia are more ossified; **former** thicker and rougher, the latter larger and more pro-Ing. Thus, as the head advances, its passage becomes more more impeded, until it is ultimately arrested, perhaps close > the outlet. In women who have pelves of this description, it Possible, also, that the head of the child may be more than lly ossified, and the action of the uterus is always strong; ► Lat a most disadvantageous combination of circumstances may place in a healthy pelvis of this kind. On another occawe shall have to refer to it; at present, we would only notice anatomical peculiarities, as it is important thoroughly to derstand them; and here again we would observe, that the nes of the extremities will be a useful guide. The wrists and les are large, the phalanges thick and short: hence the old 2 Popular opinion amongst midwives, that "a thick, short hand is bad sign when a woman is in labour," has a more just foundaon than, at first sight, might appear reasonable.

Irregularly formed Pelvis. The last of the deviations in the Pelvis is an irregularity and a want of correspondence between different proportions. The effect produced when the ilia are too patulous or too upright, has already been explained. In the brim of the pelvis, there is a great variety in the direction of its axis. It may be too upright; and if the pelvic cavity be wide, it will cause prolapsus uteri in the manner that has been stated: but the axis is more generally in the opposite direction, and approaches too much the horizontal line. When this is the case, the weight of the gravid uterus is thrown very much upon the lower part of the abdomen, its parietes gradually yield to the pressure, and the uterus projects much more forwards than it should do. Sometimes, after several pregnancies, the abdomen

has become so weak as to give no support whatever; and its uterus has been reverted over the pubes so as to rest on its thighs. We shall have again to point out how such a devision may cause considerable delay in parturition.

The greater inclination of the promontory of the sacrum nonside than to the other has been already alluded to.

The cavity of the pelvis, although sufficiently well-forms often varies very much in shape and depth: it may be road oval, triangular, deep or shallow, and yet cause little alternation the passage of the head. One variety of this kind, howers, deserves notice, as it forms a pretty accurate contrast to the pelvis resembling that of the male. Here also the pelvis is funnel-shaped: but the funnel is reversed. There is rather a space in the brim than in the standard pelvis; it is a little more oval, having its short axis (antero-posterior) less than 4 inchest but the cavity is wider, the planes of the ischia are more apart and the outlet is much more open than in the normal pelvis. It is almost doubtful whether a pelvis of this character may not be slightly diseased, and consequently beginning to assume something of that shape, the extreme of which forms the distortion of ricks.



Deformed Pelves.—i very great difference my be observed in the shape of the distorted pelvis.

In one variety the brim is not only oval, but inclines to an hour-glass shape by the close approximation of the promontory of the sacrum to the symphysis

publs: at the same time the cavity is shallow and open, and the outlet very wide (fig. 37).

In another example, the ilia are very upright and almost doubled on themselves. The brim is called cordiform; that is, it resembles the ace of hearts: but, when the distortion is great, it approaches much nearer to the letter Y. The

<sup>.</sup> Fig. 37. Ovato pelvis, case of Elizabeth Sherwood,

close, and the bodies of the pubic bones are doubled back each other. The cavity is quite contracted, in consece of the planes of the ischia being pushed into it by the





heads of the thigh-bones. The sacrum looks as if it were broken; it is bent up so abruptly at the coccygeal extremity. The tubera of the ischia are scarcely two inches apart; and the ischio-pubic rami are nearly parallel; hence the pubic angle is in some cases only  $100^{\circ}$ . (Fig. 38.)

a third instance, one side of the pelvis is of its usual shape; the opposite side seems to run almost in a straight line the sacro-iliac synchondrosis to the symphysis pubis, as if, soft, it had fallen on that side and were flattened (Fig. 39.)

Fig. 39.†



Fig. 38. Cordiform pelvis: case of Elizabeth Thomson.
 † Fig. 39. Obliquely ovate pelvis of Naegele.

# 158 DEVIATIONS AND DEFORMITIES OF THE PELVIS-

These three are the leading varieties with which we me in the deformed pelvis; but from the former two there are numerous deviations, still, however, preserving their specific characters. The first of the three forms of deformity which we have mentioned is generally described as the deformity from rickets, and as being caused in infancy; the second, as deformity from mollities ossium, and produced in the adult by that peculiar disease. The third variety has been known only within the last few years; and we are indebted for our knowledge of it principally to the distinguished Naegele.

Manner in which Deformities are produced. In order to understand the cause producing the difference of shape observed in either of the pelves alluded to, it is not necessary to enter upon the consideration of the disease that is said to be the cause of it. Rickets and malacosteon agree in the one result—softening of bone. This condition of the pelvis may therefore be assumed; but the causes under which, softening being present, the different appearances manifested by distorted pelves are produced, require examination.

There are two forces constantly acting upon the pelvis, which, in its healthy state, it is always able to resist by the mechanical perfection of its structure. One force is caused by the weight of the body from above, and the resistance of the thigh-bones from below: the tendency of the former is to press the promontory of the sacrum inwards and downwards; that of the latter, to press the acetabula inwards, upwards, and backwards, towards the sacrum. Another force is the action of the muscles attached to the pelvis. A careful examination of the effect which these forces must have on the pelvis, in relation to the circumstances in which it is placed, will sufficiently explain the cause which modifies its form. They act very differently on the adult and on the infant pelvis: in the former, a line passing through the centre of gravity would fall rather within, in the latter, in consequence of the straightness of the spine, it would fall outside and before the pelvis. In the one case, if the pelvis yielded, the spine and femora would press in towards the centre-the cavity of the pelvis; in the other, the weight of spine would fall in front of the

# HOW DEFORMITY OF PELVIS IS PRODUCED.

place the effect on the cavity would be that, when the line of parity fell within it (as in the adult pelvis), it would be pressed awards; when beyond it (as in the infant pelvis), it would be awards by the divergence of the acetabula, the sacrum paing down between them. Of necessity, therefore, the same dault pelvis would take the shape called cordiform; this the infant pelvis would be lengthened in the transverse inction.

In this explanation, it is assumed that the spinal column powers its proper direction, and that it is not altered by the spine. But it frequently happens (although by no means that it is softened and bent, as well as the principal that the spine is softened and bent, as well as the principal that the spine is softened and bent, as well as the principal that the spine is softened and bent, as well as the principal that the spine is softened and bent, as well as the principal that the spine is softened and bent, as well as the principal that the spine is a posterior curvature of the lumbar vertebre, by the the weight of the body is thrown more upon the pelvic that.

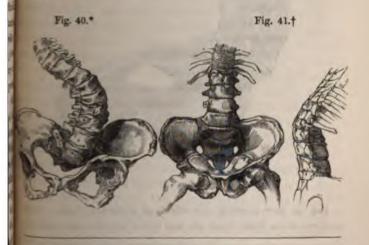


Fig. 40. Ovate pelvis with lateral spinal curvature.

Fig. 41. Cordiform pelvis with curvature backwards in a child.

### 160 DEVIATIONS AND DEFORMITIES OF THE PELV

Moreau, in his Atlas of Plates, gives a remarkable instan the opposite kind: an adult pelvis, in which the spine just a the promontory of the sacrum is bent so much forwards, the brim of the pelvis looks rather downwards. The weight d body falls in front of the pelvic cavity, while the acetabal pressed up behind it; consequently it so far resembles the pelvis, that its transverse measurement is increased. It d from the oval pelvis in the conjugate measurement not l lessened: but the cause of this is obvious; the os pubis liespletely behind the promontory of the sacrum, almost opposit coccyx, which nearly rests upon the tuber of the isch Therefore, although the distance between the os pubis and set measured directly backwards, is greatly diminished, that be the os pubis and promontory is, if anything, increased, in c quence of the latter projecting so very much before the for These exceptions, therefore, seem rather to prove the rule





Let us now consider the effect, of muscular forces. I motions of the body there are two sets of muscles connected

<sup>\*</sup> Fig. 42. Anterior curvature of spine, with a singular deformity pelvis. (Moreau.)

peris to be considered, each having a distinct office to rm. One set, passing anteriorly and posteriorly between the and the thigh-bones, keep the pelvis fixed in its position; therefore, would set very powerfully in distorting the and bone to which they are attached, but would manifestly me a much greater effect when the body is upright and the is made a centre of motion, as in the adult privit, than the body is bent forward and moves less upon the pelvis, the child. Such we find to be the case: the lower portion morum and the coocyn are bent nearly at a right angle by reat gluteal and pyramidal muscles, and close up the outlet. sionly, the effect is not so apparent in the adult pelvis, heit is counteracted by the acetabula and inclus-public ramipressed in towards the centre; but still the edges of these are more everted, and the police such itself, immediately th the symphysis, is wider than it ought to be. The other muscles are those that maintain the body in its erest posposteriorly, the dorsal; and anteriorly, the abdominal es. The tendency of the former is to draw the sacrum ds the spine, and thus to increase the projection of the intory: the effect of the latter is to draw the illium more ht, and to render it more irregular. The action of these es will therefore explain the character of some of the disas in the adult pelvis. In the infant pelvis, their influence dified by the altered position of the body. In this case, eight from above preses down upon the thigh-hones and to separate them more from each other; the nunscles, fore, passing between them and the pelvis, will draw outthat portion of the pelvis to which they are attached: the ischio-public rami are more separated, and the tubers s ischia more apart than natural; but, the distance of the -bones being increased, the oncoyn must still be drawn nds by the muscles attached to it; consequently, the outlet ich more open than it ought to be, and the abruptly curved to becomes the only impediment to the escape of the head. data and Mollities Ossium. In this explanation of the distorof the pelvis, we have confined our remarks to mechanical

## 162 DEVIATIONS AND DEFORMITIES OF THE PELVIS.

causes alone, and have made no allusion to the nature of the disease that gives rise to the softened state of the bone which prepares the pelvis for these alterations. We have done so, in order not to confound the deformity of the pelvis with the disease to which the distortion is attributed, nor to suppose, as sometimes has been imagined, that the deformed pelvis is oval because it is rickety, or that its cordiform shape is the necessary consequence of mollities ossium.

The term rickets has its origin in paxic the spine, because spinal distortions form so prominent a feature in the disease; but the term mollities ossium might be equally well, if not better applied to it. It is met with generally at that period of infancy (dentition), when there is a formation of new bone going forward, and arises when the demand for ossific matter is not sufficiently supplied. Whatever be the cause that deranges the health of the child-imperfect nutrition, impure air, or hereditary diseasethe effect is the same; the blood does not supply the want that is felt; the teeth are always very late in their appearance; the bones have not firmness to resist the forces that act upon them and hence the deformity. Under proper management, the child generally recovers from the disease, but not from the effects of it and the pelvis, distorted in infancy, is never restored to a perfect state. Now this softened state of the bones can scarcely be considered as an essential disease; rickets is only one of the manifestations of a general derangement of the health in which other structures than bone are equally affected; and then the question arises, whether the same causes, acting at a later period in adult life, may so derange the health as to produce rickets? Whether, in fact, healthy girls brought into large factories, or other confined situations, may have their health ultimately so deranged as to have rickets, and consequent deformities of the pelvis? If such were the case, the rickety pelvis in these instances would be cordiform and not oval. We have every evidence, if we call to mind the number of instances in which spinal deformities occur about the same period, that these distortions of the pelvis are likely to take place, in the same manner as they do in infancy, from a deficient supply of osseous matter; that rickets is the

quence of a general derangement of the health; and therethat it should not be confounded with mollities ossium, a is a distinct and very rare disease.

Ities ossium is accompanied by distinct and sometimes symptoms. Pains are felt down the limbs; the difficulty king increases until ultimately the patient cannot move; sediment is observed in the urine. In these cases, the setruction of bone is more or less rapid. In that of Madame quoted in Cooper's Surgical Dictionary, the bones conformly thin shells covering a grumous liver-like substance which came under our notice, the pelvis was perfectly all the articulations were loose, and the iliac bones perdin several places.

Fig. 43.\*



some instances the progress of the disease has been arrested, stortion remaining; as in the case of Elizabeth Thomson, sted on by Mr. Wood of Manchester.

ig. 43. Pelvis distorted by mollities ossium: described in the Lecture

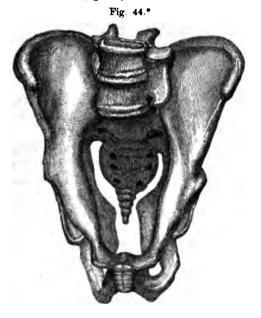
But such mass, taken in comparison with the general me of defirmed telves, are only remarkable exceptionsnames in grante vaste "-which by no means authorise consider the perliftern shape of the adult pelvis as an indithat millities issium has been its cause. If, therefore, wi assume that demandement of the general health, arising other causes than mellities ossium, close confinement, por impure air. or herelitary disease, may produce deforming the abilit relyis, bust as in infancy, we have the sound class of cases unifortunately too large) where these defor

are met with. You will find them in the large manufact towns and districts: perhaps also among the poor needleof London, sometimes even in the higher ranks of the aristo and, in all these, the deformity of the pelvis will present characters, more or less, of which this is the extreme patients are a periect contrast in their appearance, and in pelves, to these strong active women having pelves like the and as both are equally liable to difficulty in parturition important to remember the distinction between them. This shall again consider; at present, we would merely direct tion to some of the external characters, which accompany condition of the pelvis. The peculiar and well-known ages scrofula may often be observed; but this is not always the It is rather in the osseous system you will find the safest god the extremities of the boxes are large, the teeth imperfect uneven; the hands fine, but the points and joints of the fig-

thick; the nails are short and easily broken; the ankles large and generally bent in towards each other. may also be a slight curvature of the spine, but we be cautious in assuming that the pelvis is deformed best the spine is curved. Here, as in the former instances, the

tremities will be the safest indices of the character of the per-Obliquely Ovate Petris. The next variety of deformed per is the pelvis of Naegele, which he calls "the obliquely ors (fig. 39. p. 157). One side is quite normal, but the opposit not all expanded; on the imperfect side, the sacro-iliac ? chondrosis is ossified. The deformity might therefore

ed, by supposing that absorption of bone, the consequence see, had taken place at that symphysis; but we have no eviin the history of these cases, of any such previous disease; umption is consequently gratuitous, and the deformity of ris still remains a problem to be solved. Dr. Knox, late of rgh, attributes it to arrest of development at the period he ossification of the sacrum is incomplete; one side of vis advances to completion, while the opposite remains ry; so that in the adult pelvis one side is perfect, but, on osite, the undeveloped pelvis is magnified, just as if lateral of the full-grown and infant pelves were joined. The t professor of midwifery in Copenhagen presented me cast of a pelvis, in which the arrest of development d on both sides (fig. 44).



. 44. Doubly oblique pelvis: showing the form of the feetal pelvis rly age. This may be compared with an apparently similar pelvis by Morcau in his Atlas.

### 166 DEVIATIONS AND DEFORMITIES OF THE PELL

Moreau has figured a pelvis in which the conjugate a greatly lengthened; in this respect resembling the pelves gorilla and chimpanzee, but not exactly similar to that we have described.







pubis; the distance between

PELVIMETERS.—The v of pelvimeters need but description.

Contouly's pelvimete straight graduated roc which slides a small each has an upright, ju shoemaker's rule, and the is measured by placing right against the sacru sliding down the other rests against the system.

<sup>•</sup> Fig. 45. Pelvis with lengthened conjugate axis. After M. † Fig. 46. Contouly's pelvimeter.

#### PELVIMETRY.

this can be managed in the fring neith will all ioft parts attached to it, and the merus, or perhaps the , in the way. I must leave the reader to find out. Benque employed a different instrument, a pair af milliners. He ded that, by measuring between the ameri-superior spines a ilium in one direction, and from above the spinous process te sacrum to the symplysis publis in smither, he could existthe pelvis. We have already explained the uncertainty of conclusion as to the pelvis, derived from the fistance between iin. Little dependence, therefore, can be placed upon the sverse measurement. Bandelrooms assumed that the thickness he base of the sacrum was always three inches: therefore if callipers gave seven as the anters-posterior distance, the true surement of the brim would be four inches, and so on. The Professor Davis put this to the test. He measured the fise between the promontory of the sacrum and the middle a of the spinous ligament passing from the last lumbar verteto the sacrum, in seventeen peives taking them indifttiv, well-formed and distorted. He found that there is a inch of difference in the thickness of the base of the sacrum: th would be no triding matter. If allied to or taken from the ugate measurement of the brim.

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## 168 DEVIATIONS AND DEFORMITIES OF THE PELVIS.

These two instruments are the best known and most frequently employed, especially on the Continent. But there are other also employed, liable to similar objections.

Besides these modes of measuring the pelvis, none of whice can be depended upon, there are what have been called "digital measurements;" or, in other words, the experienced acconcheut from constant habit, when he passes the fingers or hand into the vagina, will form a very accurate estimate of the space in the pelvis. This is done in different ways: if one or two fingers be pressed towards the promontory of the sacrum, and they at a approach it, it is certain the promontory projects too much; for otherwise this never could happen. At a future opportunity we shall explain the digital mode of measuring the pelvis.



\* Fig. 47. Digital measurement of pelvis. Size normal.
† Fig. 48. Digital measurement of pelvis. Promontory of sacrum projecting too much.

	Character of Pelvis.	Cordiform.  Ditto.  Ditto.  Cast of Elizabeth Thomson's Pelvis, delivered by Casarean Section, by Mr. Wood.  Ovate.  Ditto.  Ditto.  Wooden Model.  Cast of Elizabeth Sherwood's Pelvis, delivered by Crotchet, by Dr. Osborne.					
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\*The oblique measurements of Pelves 8 and 9 are taken from the side, not from the centre of the promontory.

## LECTURE XI.

#### MECHANISM OF PARTURITION.

At the termination of the period required for the complete development of the ovum, a new series of operations are entered on, for the purpose of giving birth to the feetus which has been matured; these are included under the term Labour. It usually commences at the completion of the ninth month of gestation; in some instances it occurs before that time, when it is called Premature Labour. In this comprehensive sense, therefore, we would define Parturition to be—the action of the uterus to expel its contents when the factus is sufficiently mature to sustain respiration.

Divisions of Labours.—There are many circumstances depending either upon constitutional peculiarities, upon irregular formation, or upon accident, which may derange parturition or render it dangerous; hence labours have been divided and subdivided to meet these different conditions. Some adopt only two divisions. The first includes those labours which proceed regularly to their termination without interruption. The second embraces those which do not do so. The one is the rule, the other the exception; but as the exception includes several varieties, this second class is subdivided into corresponding heads. Others place the most usual form of labour, termed Natural, in the first division, and then add separately two, three, or four subsequent divisions, according to the importance which they attach to these deviations. In this manner, from two to seven divisions have been made.

## DIVISIONS OF LABOURS.

### DIVISIONS OF LABOURS BY VARIOUS AUTHORS.

-31	Difficult Dystocia	with 15 subd	livisions or	12	44		14		**	Merriman
	Abnormal Drytocia	with 6 subdivi	sions				40	24	**	Rigby
	Laborious	Preternatural		20	**	46	467	100	**	Dewees
3	Unnatural,	with 6 orders	Complex with 6 ord	144			-		**	Churchill
3	Difficult Instrumental Laborious	Preternatural Preternatural Preternatural	Complex	Flood	ing	**	**	::		Denman Davis Blundell
	Premature	Preternatural	Tedious	Labor	rious	Imprac		Compl	icated	Burns

These numerous divisions, to which many more might be aided, are a sufficient reason for not wishing to complicate the subject by proposing another. It is preferable to adopt that which is most generally known, sufficiently distinct, and in many respects more simple and practical than some of those enumerated. Denman's division is sufficient for our purpose; we propose it to you for selection, and shall consider labour under the several leads of Natural, Difficult, Preternatural, and Complex. Denman defines labour to be natural, "if the head of the child present; if the labour be completed in twenty-four honrs; and if artificial existance be not required." (Midwifery, p. 165.) Labour is salled preternatural, when some other part than the head of the child presents. It is called difficult labour, when it exceeds twenty-four hours; and complex labour, when some accidental of danger occurs which may render interference necessary.

Stages of Labour.—In order to study parturition efficiently, it is necessary to divide it into certain stages. The means by which the uterus is opened is not the same as that by which the child is forced through the pelvis; and again, the manner in which the placenta is separated and expelled is different from order; hence, labour has been divided into three stages, sometimes into four, and even five. The most usual division is that of Denman—the first stage being the dilatation of the os uteri; the second, the expulsion of the child; and the third, the separation of the placenta. Other authors subdivide the first into prementary and dilating stages; and some subdivide the second tage into two; as may be seen in the following table.

IB:

### MECHANISM OF PARTURITION.

## STAGES OF LABOUR BY DIFFERENT AUTHORS.

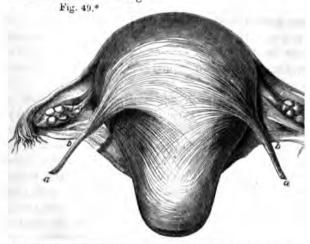
1st Stage.	2nd Stage.	3rd Stage.	4th Stage.	5th Staye.
Promonitory		Expul	sive sive Expulsive	Placental I Placental I Placental J
Dil	ting	Occiput under the		Placental 3
Promonitory	. Dilating .	Rupture of mem- branes and pas- sage of the head.	Expulsive	Placental .

Of these divisions, we would select that of Denman; i most generally adopted, and seems to be that which is out by nature herself.

The first stage is dated from the opening of the os uter complete dilatation.

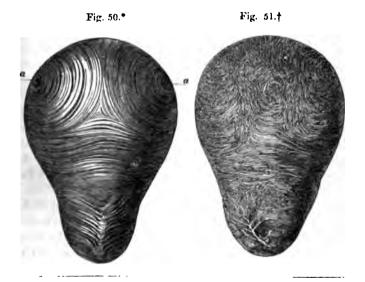
The second stage commences when the os uteri is I dilated, and terminates in the expulsion of the child.

The third stage is occupied with the expulsion of the p MUSCULAR STRUCTURE OF THE UTERUS.—Before descrimanner in which the dilatation of the uterus takes pla necessary to recapitulate very briefly the arrangement muscular fibres of the organ.



\* Fig. 49. Muscular fibres on the external surface of the uters nating in the round ligaments a b.

The fibres on the external surface form two broad fan-shaped cular layers, spreading from the round ligaments over the culturer (fig. 49). On the internal surface, there are two concentric arrangement (figs. 50, 51). The third set, very distinct, pass circularly round the body of the uterus; the fibres of the former two layers gradually pass into and interaction, with those of the latter. The mass of fibres lying between external and internal layers have no determinate direction, 40.) but may be supposed to give increased powers to those citch we have described. Sir C. Bell, in his valuable paper "On Muscularity of the Uterus," has mentioned fibres which pass a "vortiginous" direction from the fundus to the mouth of the rerus. Such, then, is the arrangement of the muscles or muscle the uterus, so far as it has been demonstrated.



• Fig. 50. Exaggerated view of the fibres on the internal surface of the terus: a a, the orifices of the Fallopian tubes.

<sup>†</sup> Fig. 51. Uterus inverted, to show the natural appearance of the fibres n its internal surface.

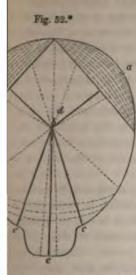
Action of the Uterine Muscles. The external muscular lasslowly contracts for some time before labour has actually comenced, and draws the uterus gradually towards the pelvis. Buthis means, also, the fundus is maintained in its proper direction and prevented from inclining too much to either side. This gradual contraction is unaccompanied by pain, and therefore is not taken notice of; but its effect in altering the size of the abdomen, and making it less prominent, has always been observed, and noted as a premonitory sign of labour. These fibres also serve a useful purpose when the dilatation of the os uteri commences; the fundus being thus supported, the fibres on the internal surface contract more efficiently.

The Action of the Internal Sets of Fibres requires a more careful examination, inasmuch as different, and, it appears to me, incorrect explanations have been given both of the arrangement of these fibres and of the manner in which they contract. Besides this, it is necessary for you to have a correct view of uterine action, and of the order observed in these contractions, to enable you to notice the deviations from it that occur. We shall therefore consider separately; 1. The effect produced by the contractions of the different sets of fibres; 2. The order in which these contractions take place.

1. When the fibres surrounding the Fallopian tubes contract together, the fundus uteri is equally diminished on all sides; and their combined effect, conveyed through the medium of the liquor amnii, is precisely the same on the mouth of the uterus as if the fibres passed down vertically and acted directly upon it. The following diagram (fig. 52.) may render this intelligible.

Let us suppose a line  $(a\ d)$  to pass from the opening of the Fallopian tube of one side of the uterus to the opposite, in such a manner as to represent the direction of the force of the fibres surrounding it. This line would pass obliquely downwards to the opposite side. If, therefore, these fibres alone acted, the fundus on that side would be diminished in its size, and the contents of the uterus pressed toward the lower section of the opposite side, but not against the os uteri. If, further, two such lines  $(a\ d)$ , passing from the orifice of each Fallopian tube

ented the force of each set of these concentric fibres, the in-



tersection of these lines would be the common point where these forces meet, and, to a certain extent, are opposed. The combined force must, therefore, take an intermediate direction equidistant from both lines, which would be represented by a line  $(d \epsilon)$  passing in the axis of the uterus, and through the os uteri. It follows, therefore, that when the fundus of the uterus contracts equally, the resulting force must be communicated to the os uteri, as perfectly as if the fibres passed vertically from the fundus to the mouth of the uterus.

the circular fibres of the body and cervix contract, their is to render the uterus more and more cylindrical, acto the degree of their contraction, at the same time that se in the cervix. Again, if the uterus were emptied of nts, the simultaneous action of all these different sets of ould be, to draw the parietes equally towards the centre cavity. But when the uterus is gravid, and makes to expel the fœtus, they cannot all contract in this

stion of the Os Uteri. The fundal muscles are those which ffect the dilatation of the os uteri and the expulsion of

<sup>.</sup> The lines a, b, represent the direction of the force of the fundal c d, the direction of that of the circular muscles of the body of t d e, the combined force of these muscles. The dotted straight exent the direction of the force reflected by the liquor amnii; the rved lines, the direction of the circular fibres of the body of the

the child, the fibres of the body and the cervix remaining comparatively passive. It has already been explained, that their united action is in the direction of the os uteri; but there is still a necessity for a means by which the result of that action should be perfectly conveyed to it. This is accomplished by the fluid enclosed within the amnion, which acts with a distending power upon the os uteri exactly equal to the combined force of these muscles. The circular fibres of the body and cervix resist the efforts of the fundus to distend them; and the force of their resistance is also communicated to the contained fluid. This force is therefore, as it were, reflected upon the os uteri, so that the whole uterus may be said to act as one muscle in dilating the mouth.

The os uteri has been generally considered to possess circular fibres, the action of which resembles, in some degree that of sphincter muscles in other situations, so that its dilatation is the effect of their relaxation. The existence of these circular fibres at the os uteri has never been proved. Hunter could not demonstrate them; Sir C. Bell could not trace them out.\* If a sphincter muscle exist in that situation, why should not its fibres

<sup>\*&</sup>quot;I have not succeeded in discovering circular fibres in the os times corresponding in place and office with the sphincters of the other hollow viscera; and I am therefore inclined to believe, that, in the relaxation and opening of the orifice of the uterus, the change does not result from a relaxation of the muscular fibres surrounding the orifice. Indeed it is not reasonable to conceive, that the contents of the uterus are to be retained during the nine months of gestation by the action of a sphincter muscle. The loosening of the orifice, and the softening and relaxation which precedes labour, is quite unlike the yielding of a muscular ring." Sir C. Bell, on the Muscularity of the Uterus.—Med. Chir. Trans. vol. iv. p. 346.

Dr. William Hunter, whose perfect accuracy of description is now established, states, "The cervix uteri, where the penniform rugæ are situated, had not such regular nor so large fasciculi as the rest of the uterus. In the body of the uterus, the fibres are very regularly circular. The fundus was made up of two concentric circular planes of fibres, at the very centre of which was the orifice of the Fallopian tube."—Anatomical Description of the Gravid Uterus.

be a distinct and as easily made out as the sphincters of other hollow muscular viscera? Nor does the manner in which the os ascridilates support this assertion. It expands very gradually; it yields slowly to the power described; and the dilatation does not resemble the comparatively sudden relaxation of a sphincter muscle. Were it similar, rapid labours (at least so far as the dilatation of the os uteri is concerned) would be the rule, not the exception.

It would be incorrect, therefore, to attribute to muscular contraction the resistance offered by the os uteri. It seems more probable that the firm, highly condensed tissue that forms the cervix of the virgin uterus, still retains, in its altered state, many of its original characters; that this tissue, although more unsided, is still sufficiently compact and elastic to offer a great degree of resistance; and that its dilatation is effected by the accessantly repeated efforts of the uterus slowly overcoming and expanding it. Such a view seems to be fully supported by the dervation of labour in its first stage, where we can perceive the uteri first becoming thinner, and then progressively (not midenly) opening. It has been stated that the sudden relaxation of the mouth of the uterus, after a continued contraction, can may be explained on the assumption of its muscularity. The effect, however, may be observed in other tissues besides mode; the perinæum, for instance, often resists for a long time the action of the uterus, and then yields suddenly to its full extent, so that the head is most unexpectedly delivered; and yet the distended portion of the perinæum is not muscular. Besides, sudden dilatations are only exceptions to the general rule. In ordinary cases, dilatation occupies a certain period of labour a very long one), and the mouth of the uterus yields very padually to the power employed.

Use of the Liquor Amnii. If the uterus exerted its full power the undilated os uteri, and if the unyielding head of the dild were driven forcibly against it, the almost certain conse-

stance, and ultimately terminate in inflammation of the mouth of the uterus. To obviate such an effect, nature interposes a

fluid medium between the power and the resistance. The liquot amnii, contained within the membranes, occupies the cavity of the uterus; and when the parietes of the organ contract upon it, the force exerted is (as we have explained) by this means accurately conveyed to the os uteri. When the latter dilates in the slightest degree, the fluid insinuates itself within the smallest opening, and expands it by a direct lateral pressure against its edges. The power of the uterus is thus made to act in the most favourable manner for distending its mouth.

Other advantages are also gained. The os uteri may dilate irregularly; but any attempts to overcome forcibly the undilated portion, is prevented when the force is conveyed through a fluid which, while it readily yields to an undue resistance, still maintains an equable pressure upon the edges of the os uteri. Any irregularity in the action of the uterine fibres is also, to a certain extent, obviated; because these contractions, although irregular being still conveyed by the fluid, are thus equally communicated to the os uteri. Further, so long as the tissue of the uterus intervenes, it is necessary to moderate the great power which the uterus is capable of exercising to dilate it; this is effected by the liquor amnii. The force conveyed by a fluid does not act in one direction only, but is distributed to every part of the surface to which the fluid is applied. The force, therefore, which is exerted to expand the mouth of the uterus, being communicated by fluid, is not only directed against the os tincæ, but against the fundus and sides of the uterus. The fundus, consequently, it opposed, not only by the os uteri, but by its own action reflected by the liquor amnii. Hence, so long as the fluid remains and the os uteri is undilated, the more powerful the action of the fundus, the greater is the resistance to it. The actual force employed is therefore very moderate, and any sudden or violent effort at distension is altogether obviated. This may be observed in the character of the pains during the first stage; because however severely they may commence, they last but a short time, and the effect on the os uteri is comparatively slight. If these short, though severe pains, be contrasted with the long-continue and powerful pains which follow them when the liquor amnii

ed, and the os uteri dilated, the difference in the effect sufficiently obvious. As a means, therefore, of conveying le muscular power of the uterus upon the os uteri—of ing and equalising the force employed—of dilating the f the uterus without exciting irritation—the liquor amnii ential importance.

der of Uterine Contractions. The order observed by the a the contractions which take place may be ascertained entally. For instance: when the hand is passed into the fiter delivery, to remove the placenta, we find that it may be some time in the cavity without exciting its contract the moment the hand is being withdrawn, the fundus contracts, and, as it passes along the vagina, the contract continued from above downwards. So also, in other s, when the os uteri is only irritated by the fingers of the troduced into the vagina, and an attempt is made to the fundus immediately contracts, not the os uteri. You as a very favourable illustration of the reflex nervous the fundus downwards, and that the action is commenced

position to this view of the order of uterine contractions, the authority of Wigand, who gives an explanation altolifferent from what we have stated. In order to place his clearly before you, I shall quote the following passsage r. Rigby's work (p. 99), in which Wigand's views are y given:—

examining the course of a true pain, we shall find that the ions of the uterus do not begin in the fundus, but in the and pass from one to the other. Every pain which comment in the fundus is abnormal; and either arises from some ment in the uterine action, or is sympathetic with some a not immediately connected with the uterus, as from astipation, etc. We very seldom find that a contraction terms which has commenced in the fundus, passes into ix and os uteri, and becomes a genuine effective pain; speaking, the contraction is confined to the circumference

of the fundus, without detruding the fœtus at all genuine pain comes on, so far from the head being pre the os uteri, it at first rises upwards, and sometimes g of reach of the fingers, whilst the os uteri itself is fill bladder of membranes; if it had commenced in the stead of the inferior segment of the uterus, so far fro being drawn up at the first coming on of the pain, it been forcibly pushed down against the os uteri. In of a few seconds, the contraction gradually spreads ove uterus, and is felt especially at the fundus; the head been raised somewhat from the os uteri, is now ag downwards to it, and seems to act as a wedge for the dilating it; it is not until the whole uterus is beginn tract, that the patient has a sensation of pain. We fore, consider that a genuine uterine contraction cons tain phenomena which occur in the following order :os uteri grows tight, and the presenting part rises from it, then the rest of the uterus, especially the f coming hard, the patient has a sensation of pain, as senting part of the child advances." (Wigand, op. cit. vol

Now, if we desired an additional evidence to profundus was the first part of the uterus to contract, a os uteri, we could not have a stronger proof than the by Wigand to support a contrary opinion-viz., the l the contractions commence, getting "even out of re fingers, whilst the os uteri is filled with the bladde branes." In Wigand's explanation, the influence of sure seems to be altogether forgotten. The immediat contraction commencing at the fundus would be to co liquor amnii, which of necessity forces its way before on to the mouth of the uterus. The fluid in this posi against the head with power equal to that which cor and therefore pushes the head up until the increasing of the fundus forces it down again, so that the phenom are quite consistent with the statement that uterine begins at the fundus; in fact, it could not be otherwi as the waters remain in the uterus. But if the contra

ed from below, the fluid must be driven upwards towards fundus, and that portion between the os uteri and head ed aside; at least in the first instance, so that the head might asily felt when the pain commences, although not so afters; but the reverse is the case, and you will find that, in cases where the liquor amnii is in large quantity, it is diffito feel the head at all, except in the interval of the pains. e tightening of the os uteri," alluded to by Wigand, seems another source of error on this point; it being generally ounded with muscular contraction of the os uteri. It seems e to be produced by the pressure of the fluid downwards ast the sides of the uterus, combined with the increased mination of blood towards the os uteri, which arises from ressels at the fundus expelling a portion of their blood during contraction. The os uteri is rendered fuller, and the lips are closed than before; hence the opinion that this "tightenis the result of muscular contraction, the evidence for which not seem to me sufficient to establish so important a

hese objections to Wigand's view of the order of uterine in are made in entirely a practical sense (see p. 43). It is our purpose to enquire where the point of peristaltic action mences, but whether the uterus contracts from below upwards om above downwards. Everyday's experience convinces us the latter is the order of contraction which it is most estal to secure; because, when that order is reversed, not only a arm or funis, as Wigand says, prevented from descending, the child itself; and if the child be delivered, the placenta tained by these irregular contractions.

it have already pointed out the advantage of the liquor it; hence the times at which the membranes are ruptured makes a material difference in the effect produced upon the thof the uterus. If they be ruptured when the dilatation is alight, the suddenly increased power of the fundus, forcing seal of the child against the os tincæ, soon excites irritation, ents its expansion, and sometimes causes inflammation. If they be broken when the uterus is sufficiently open to

allow the membranes to protrude into the vagina, and the cotractions of the fundus to increase, it is probable that the dilattion will be advanced more rapidly, because of the diminisher resistance from below, and the increased force from above. This not, however, invariable. It occasionally happens that, even under these circumstances, the os uteri becomes irritated and retarded in its dilatation.

CONDITIONS OF THE OS UTERI .- The os uteri varies greatly is its density and firmness; it consequently offers different degree of resistance to the fundus uteri. During gestation it has gradually undergone certain changes, preparatory to its dilatation The highly condensed cellular tissue of which it consists has be come looser, and is traversed by more numerous vessels. The cervix is nearly, if not altogether obliterated; and the circula orifice of the os uteri alone remains. Its edges may be either thick, full, and soft, or extremely thin, according to the degree to which its cellular tissue is unfolded. They are alway moistened with the viscid mucus which is secreted so abun dantly at this time. If the fingers be passed within the os uter and separated, the edges yield readily to a moderate pressure there is a very slight increase of temperature; and there is n tenderness or pain produced when the os uteri is touched. This is the most favourable state for dilatation; the os is quite prepared to yield to the action of the uterus, and is called, in obstetri language, the dilatable os uteri.

Rigidity. There are many exceptions to the condition of dilatability, varying with the degree to which the density of structurin the os uteri may be increased. The cellular tissue is never a loose and permeable in the first instance as it becomes afterwards the mouth of the uterus is therefore more resisting in first than in subsequent pregnancies. Its structure retains more of it elasticity and firmness in young women pregnant for the first time, and consequently much more time is required in unfolding it; hence the first stage of labour is always longer in primiparm than in those who have had many children. The os uteri is still more firm and resisting if, in addition to a first pregnancy, the woman be advanced in years; the cervix and os uteri remain s, compact, and impermeable to the moment of parturition: state may be attributed to the increased firmness and diminvascularity which age produces in the tissues generally. It obtains the name of rigid os uteri. But there are different es of rigidity. Sometimes the structure is only tough. It way very slowly to the action of the uterus; nevertheless it although, as it were, reluctantly. In such cases the os may remain cool and free from tenderness, but oppose a firm nce to the pressure of the finger, and always requires a me before the dilatation is accomplished. There are, howcertain class of cases in which this condition of the uterus he extreme. It might almost be called the undilatable os In this state its structure is unusually dense, and feels like ge. The edge of the os uteri is perfectly unvielding; when it might be compared to the feel of Gimbernat's ligament. y thin, it still offers the same resistance, and is to the like a hole made in parchment. Instances of this extreme y are met with, not only in women who are advanced in it in those who have been all their lives accustomed to bodily exertion, and exposed to the vicissitudes of laborious tions. They are generally hard-featured, coarse-skinned, lar women, of low stature, with thick short fingers, large and the bones generally prominent. It is in these cases et with that form of pelvis that I have described as posmany of the characters of the male pelvis.

instance, by which the head is brought into direct with the undilated os uteri. It is also often induced, not idental causes, but by too much meddling, making too it examinations, attempting to dilate the os uteri at instance, by which the head is brought into direct with the undilated os uteri. It is also often induced, not idental causes, but by too much meddling, making too it examinations, attempting to dilate the os uteri article. Sometimes the head of the child presses so unupon the os uteri as to excite inflammation in it. The

head may not be directed exactly in the axis of the brim, be may rather rest upon the pubic portion of it, compressing to anterior lip of the uterus with every pain. While the remaining portion of the mouth of the uterus expands, this remains undileted, and forms a band in front of the head. When the membranes are ruptured, the pressure is so much increased that the anterior lip often inflames and grows quite rigid. Again, there are cases where the os uteri is driven down with the head into the pelvic cavity, and the whole circle of the os tincæ is compressed so tightly against the pelvis as to produce inflammation; further dilatation is arrested, the os uteri is rigid, and, if it remain long in this condition, slough may be the result: the whole os tincæ has been completely separated in this manner, and expelled with the head of the child.

In conclusion, we would direct attention to the difference in the action of the uterus, when it has to overcome an unusual opposition arising from this state of rigidity. The contraction take place continuously for a certain time; but when the usua period required for dilatation is exceeded, or when the or uteri becomes irritated, the pains grow feeble, and the uteru often suspends its action altogether. By this means an intervaof rest is gained, the irritation may subside, the patient may ge some sleep, and recover from her fatigue, which otherwise migh end in exhaustion. When the action of the uterus is renewed after a suspension of this kind, the dilatation is often rapidly completed. Much confusion has arisen as to the duration of labour in consequence of neglecting this fact. Its commencemen is generally dated from the sanguineous discharge (the show) which marks the first opening of the os uteri. But if the first stage occupy a very long time, including these intervals of suspension some altogether discard the previous irregular labour, and date its commencement from the time that the pains return regularly and continuously. Thus a labour which one author would describe as being very much prolonged, another might brin within the usual limit of twenty-four hours, meaning by this twenty-four hours' continuous labour; and hence arises muci contrariety on this point amongst obstetric authorities. This

impension of uterine action affords an additional illustration of principle which Nature seems to observe in the dilatation of the os uteri—to do nothing by violence. In all ordinary cases, the spar amnii moderates the action of the uterus; but, if there be a unusual resistance offered to it, and the waters be discharged, the increased action does not continue; it is suspended, and again moved; so that the object is obviously to accomplish by time that Nature avoids effecting by force.

## LECTURE XII.

MECHANISM OF PARTURITION (concluded).

STAGE OF LABOUR .- We have now to examine the manner which the child passes through and is expelled from the cavity of the pelvis. This is the second stage of labour. So long as the tisse of the uterus was interposed to the advancing head, the beign of nature was evidently to moderate the action of that argan, and to prevent too violent a distension of its structure. But when this no longer arrests its progress, and the pelvis becomes the impediment, the full power of the uterus is exercised in force the head through the osseous cavity which resists its strance. You will therefore observe a marked difference in the character of the uterine contractions. Not only is the entire force of the uterus employed, but it is aided by the muscles that bound the abdominal cavity. This change will explain a difference in the character of the pains which are the effect of these contractions. In the first stage, they are sharp, severe, but short in their duration. They are called, in obstetric language, "grinding pains." In the second stage, they are less acute, perhaps but are steady and long-continued; a full inspiration is ten previously to their commencement, and the pain is exessed by a gradual inspiration, accompanied by a deep tone of

voice. These pains are called "bearing pains," and their decontinuous groan forms a strong contrast to the shrill and almosagonizing cry that accompanies the grinding pains. When the action of the uterus is so much increased, the hazard that wou arise if the adaptation of the head to the pelvis were not exact obvious, if the former were too large, or the latter too small serious danger might be the consequence. Hence the second stage of labour, and the passage of the head through the pelvis requires the closest attention. It is necessary not only to understand all its varieties in theory, but also to take every opportunity of becoming practically acquainted with them.

We would urge this with the greater earnestness, because it too frequently happens that the practitioner is satisfied if he can distinguish the head, without caring much about its position, and hence decides upon the necessity for interference, not by his knowledge of the cause of the difficulty, but the length of time this stage may occupy. We would therefore refer to the observations which we made when describing the obstetric anatomy of the pelvis; in which we pointed out the influence of the varieties of its shape on the progress of the head of the child, and explained (p. 133) that the passage of this was accomplished by a combinanation of four distinct motions harmonising in one effect. These observations we shall briefly recapitulate.

Passage of the Head.—1. When the head is above the brim of the pelvis, the forehead and occiput are nearly on the same level (fig. 53); but when the head enters the brim, the occiput descends lower than the sinciput, and glides a certain distance along the plane of the ischium, against which it rests. The forehead then advances more rapidly at the opposite side of the pelvis, until it is arrested by the convergence of the ischium and shorter sacro-ischiatic ligament. The occiput again descends obliquely along the ischio-pubic ramus, and emerges with part of the parietal bone beneath the pubic arch. The head, therefore, might be said to oscillate on its biparietal measurement.

Simultaneously with this motion, there is a very slight rotation on the longitudinal axis of the head, by which that side of the head next to the symphysis pubis descends lower than that the sacrum, so that the parietal protuberance of the pubic ecomes the presenting part (fig. 54).





As the head is so advancing through the pelvic cavity, ape of the pelvis obliges it to pass in a spiral direction; the head, which may enter the pelvis in the oblique or erse measurement, is turned, as it descends, towards the ate axis (fig. 55).

When the head escapes from the outlet, the occiput rests the ramus of the os pubis and ischium, and becomes a fixed round which the remaining portion of the head succespasses out. In some instances, the occiput rests directly the pubic arch, and the head is expelled in the conju-

<sup>5. 53.</sup> The head above the brim of the pelvis; the anterior and  $\pi$  fontanelles being nearly on the same level.

In order to render the relation of the head and pelvis more intelthe pubic side of the pelvis is represented as being transparent in the following views.

gate axis of the outlet. According to its more usual course, it passes out obliquely.

Positions of the Head. The head does not descend always in the same position, and there are accidental displacements that may



retard its progress. It is necessary, therefore, to understand these deviations. Formerly, the varieties in the position of the head received but little attention. The older writers only observed the manner in which the child was expelled (Sir Fielding Ould, however, is a noble exception). They found the occiput generally towards the os pubis, when the head escaped from the vulva, but sometimes the face; hence they made only two divisions, or, to speak more correctly, they considered the former to be the rule, the latter an accidental exception to it. Baudelocque, however, observed the progress of the head while it was within

<sup>•</sup> Fig. 54. The head within the pelvic cavity. The occiput and right parietal bone are the most dependent parts, the occiput resting against the plane of the ischium and obturator space, and the ear to the right of the symphysis pubis.

the pelvis, and determined the position by touch, not by sight. He described six different positions; and, since his work appeared, every division that has been made, whether into four, six, or eight positions, has been formed on the basis which he has laid dwn—that of determining the position while the head was in





the pelvis, and not when it was expelled from it. Authors have not agreed upon the number of these positions, nor upon their water of frequency. It will be necessary, therefore, in order to perent confusion, to arrange their divisions in a tabular form, before describing the positions, and the mode of ascertaining them. The terms employed require a brief explanation. The relation of the head is generally determined by that part of it which corresponds to the plane of the ischium, and therefore is positive to the cotyloid cavity. If the occiput be in that situation, it is called the occipito-cotyloid position; if the forehead,

<sup>\*</sup> Fig. 55. Further advance of the head through the pelvic cavity, prebuilt to emerging from the pubic arch. The parietal bone, and part of the occiput present at the pubic arch—the head more in the anteroperior direction, and the anterior again descending to the level of the potential fourtanelle.

the fronto-cotyloid. In the same sense you may have the opito- or fronto-pubic, when the occiput, or the forehead, is app to the os pubis instead of to the ischium; or the occipito-il when the occiput is opposite the centre of the ilium. 'cociput, also, may be to the left or the right side of the per and thus you have the right occipito-cotyloid position, the occipito-cotyloid position, and so on.

In the table before you, the numbers are placed in the or adopted by each author.

	Right occipito- cotyloid.			Right fronto- cotyloid.		Left occipito- illac.	Right occipito- illac.	
1	2	3	4	5	6		;	Baudeloeq Dewees.
1	2		3	4		5	6	Lachapell
1	3		2	4		***	***	Naegele.
3	4	7	5	6	8	1	2	Ramsboth

Nearly all authors agree that the most usual position for head to pass is with the occiput corresponding to the left p



of the ischium. This is called the first position (or left occip cotyloid) (fig. 56). When the head is in this situation, the occ

<sup>\*</sup> Fig. 56, First position.

the relation to the ischium which we have stated. The forea corresponds to the right sacro-iliac synchondrosis. The It parietal bone is lower than the left; and its protuberance is lowest part of the head which presents. As the head ades, the occiput becomes gradually more anterior, and the ead dips down a certain distance in the pelvis, but the tal bone remains unaltered. As it approaches the outlet, the ead ceases to advance, and the occiput and parietal bones down upon the perinaum to the utmost extent, descending the ischio-pubic ramus, in order to emerge under the arch. In making a vaginal examination to ascertain this on, the finger first touches the parietal protuberance; the al suture is felt close to it, directed obliquely backwards. riorly, and to the left side, this suture terminates in the rior fontanelle; but the anterior fontanelle cannot yet be the opposite side. The first position is chiefly determined is situation of the posterior fontanelle.

the second position of Baudelocque (or right occipito-cotyloid), cciput is opposite to the plane of the right ischium; the rior fontanelle is, therefore, in the same relation to the right



of the pelvis that it was to the left in the first position, being for to its transverse axis. The sagittal suture passes

<sup>\*</sup> Fig. 57. Second position.

obliquely backwards, from right to left; the left parietal b on the pubic side, and descends lower than the right (ig. i

The third position (or left fronto-cotyloid) is the converthe first. The frontal bone and anterior fontanelle corresponder the plane of the left ischium; the sagittal suture passes wards from left to right; the posterior fontanelle is opposite near the right sacro-iliac synchondrosis; the left parietal; becance is the most dependent point; and the car is sit as in the second position, only more withdrawn from the; and nearer the groin (fig. 58).

Fig. 58.\*



The fourth position (or right fronto-cotyloid) has the front opposite the plane of the right ischium; the sagittal passes backwards, from right to left; the right parieta presents; and the right ear is opposite the left groin (fig. )

Such are the principal positions, as they are given in t ferent works on midwifery. The diagnostic marks by they are distinguished are the fontanelles and the ear. In to discriminate between occipito- and fronto-cotyloid po you must understand the character of the anterior and p fontanelles, judging of them by touch, not by sight. dried bone, the posterior fontanelle is a triangular space.

<sup>\*</sup> Fig. 58.—Third position.

of the child, the finger will often detect no space, but only t, the centre in which three lines of suture terminate. The or fontanelle, being so much larger, lozenge-shaped, and





g four lines of sutures terminating at its angles, could be distinguished from the posterior, if the eye were to decide testion; but, as we must judge by the finger alone, these ters are not always obvious. The anterior fontanelle is : up, and more removed from the finger in fronto-cotyloid ons than the posterior fontanelle is in the first or second ons; consequently, the finger cannot reach sufficiently far to its exact shape. The divergence of the parietal bones may and perhaps the coronal suture, but the two remaining of the lozenge formed by the frontal bone are too distant, r can the frontal suture be felt; hence there is some resemto the triangular space of the posterior fontanelle, the lifference being in the greater size of the triangle in the or fontanelle: but in cases where the ossification of these advances slowly, the posterior fontanelle is large, and resemble the anterior. It is possible, therefore, to conthe one with the other, and it requires practice in exam.

<sup>•</sup> Fig. 59. Fourth position.

ining by touch, in order to discriminate between them in all cases. As a general rule, however, the posterior fontanelle is felt like a central point, in which three lines meet; the anterior more distinctly as a membranous space, but usually undefined. If there be any difficulty, it may be removed by a careful examination of the second diagnostic mark—the ear, which may be felt on the pubic side of the pelvis, except in cases of great disproportion. As the lobe of the ear is always nearest to the occiput, we can by it determine the side of the pelvis where the occiput lies, and therefore can distinguish the two positions which have the occiput on the left side from the two that have the frontal bone in the same situation; but we cannot so easily decide between collateral positions the first and fourth, or the second and third.

Authors have not agreed as to the second position. Baudelocque placed the right occipito-cotyloid position second in the order of frequency, and was followed by several other writers until Naegele made these positions the subject of his observation. The result of his examinations led him to doubt the accuracy of the description which had been given, and ultimately to deny altogether. He found that, although the head was expelled in Baudelocque's second position, it did not enter the brim of the pelvis in that direction, but that it passed down first in the third position, with the occiput towards the right sacro-iliac synchondrosis, and, as it descended, rotated gradually into Baudelocque second position, in which it was expelled. Thus the occiput and of course the head, might be said to describe a kind of spin curve from right to left, as it passed through the pelvis. Naegele's explanation has been since confirmed by other observers, and is in the main correct-a conclusion at which I have arrived from personal observation. Being anxious to determine this question, I availed myself of the opportunities afforded me in the Dublin Lying-in Hospital, of putting it to the test, and found that the head entered the brim in the third position in nearly an equal number of cases as in the second; that when it descended in the third, it passed generally without any difficulty into the second and was so expelled, while in a very few cases it remained in its original position. The whole evidence establishes Naegele's curacy of description; and it may be admitted that, as a general the the head rotates from the third into the second position, when is passing through the pelvis; but, that there are exceptions.

The fourth position also passes into the first; but sometimes, bough very rarely, preserves its original direction.

It has been stated that, in one of the motions of the head of shild, the frontal bone descends to the level of the occiput, some instances, however, from an accidental cause, the foread is driven down too far; and, the head becoming fixed in e pelvis transversely, its progress is thus arrested. It is essento understand this cause of delay in the second stage, because s very easily corrected; and any ignorance respecting it might d to the erroneous impression that the head should be deby instruments, because it was so long fixed in its position. hen this accident takes place, the anterior fontanelle may be erved to be remarkably distinct; we readily trace out its shape, and feel the four sutures distinctly at the angles. finger also passes very easily between the os pubis the head, so that there appears to be rather more space in at situation than usual. Finding, therefore, this evidence of om in the pelvis, the anterior fontanelle perfectly within reach, at the same time, the head not advancing, we have sufficient of of this deviation. It is described by many authors as the The separation of the chin from the chest of the child. The de of correcting it is sufficiently simple. The head should be soiged from its position in the interval of a pain, and the pressed against the frontal bone until the uterus again tracts; the occiput will at once descend, and the labour prowithout further difficulty. There are rare instances, in

Of seventy-four cases examined, the following results were noted:-

F-1	Fourth into First.	Second Position	Third into Second.	Third Position.	Irregular.	Face.
	3	11	9	2	4	2

ining by touch, in order to discriminate between them As a general rule, however, the posterior fontanelle central point, in which three lines meet; the anteritinctly as a membranous space, but usually undefine be any difficulty, it may be removed by a careful exthe second diagnostic mark—the ear, which may be pubic side of the pelvis, except in cases of great d As the lobe of the ear is always nearest to the occ by it determine the side of the pelvis where the occ therefore can distinguish the two positions which have on the left side from the two that have the frontal same situation; but we cannot so easily decide betw positions the first and fourth, or the second and thir

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be explained in this way: so long as the head is above the brim of the pelvis, its position can always be very easily altered, and it frequently changes from one into another. If it should happen that, in any of these alterations, the occiput is placed upon the brim of the pelvis, it may glide therefrom towards the ilium, the frehead may take its place, and the face descend as described. If this were true, the first position of the face would be the result of a rotation of the fourth position of the vertex, which rarely enters the pelvis; and the second of the face, a rotation of the third of the vertex.

It is more important, however, to consider the mode of distinguishing these positions, because the situation of the face is such that it is exposed to great tumefaction. The face is much more vascular than the vertex; and, it being the most dependent part, and very much compressed, the cheek, the eye, and the portion of the mouth which presents, are always very much swollen. Even with the most careful management, the features of the child are more or less disfigured; but this may be greatly increased by frequent examinations. Unfortunately, the infant is too often a severe sufferer from this cause. The unusual characters of the position lead the inexperienced practitioner to make several fruit-less attempts to determine what it is; the tumefaction is much greater than before, and the outline of the features more confused; thus serious injury to the child is sometimes the result—the eye has been destroyed in this way.

In examining a face-presentation, the first point that attracts attention is, the *irregularity of the soft surface* which presents itself. The soft cheek and the malar bone have some resemblance both to the breech and the shoulder, and we cannot define the outlines of the features with the same accuracy by touch as by sight: it is this difficulty that leads to the frequent examinations that are made in these cases. We generally first feel the nose like a soft fleshy elevation: if this be cautiously traced, the finger passes on one side to the bridge of the nasal bones, and on the opposite, to the lips and mouth. This may be taken as a diagnostic mark of the position. When the finger passes from

the lips to the gums, and thence to the tongue, the sensation communicated by the firm ridge of gums cannot be mistaken.

These face-presentations were formerly considered to be very unfavourable, and to give rise to great delay and difficulty in the progress of labour; but this impression seems to have been created much more from the novelty of the position than from experience. In the extensive hospital at Vienna, Boer noted eighty face-presentations, and observes, "there were three, or at the most, four, where the children were born dead. None of the patients suffered in the slightest degree from any of these labours, and, except one case, all were left entirely to nature. In one case only, on account of the weakness of the pains and doubtful character of the symptoms, I deemed it necessary to terminate the labour by the forceps."-(Rigby, p. 130.) In the Dublin Lyingin Hospital, Dr. Collins gives thirty-three cases in his report and states, " Four of the thirty-three were still-born. With the first, the labour lasted thirty-six hours (the only instance); the second was an acephalous fœtus; with the third, the labour lasted eight hours; with the fourth seven hours; all were delivered without assistance." - (Report, p. 83.) Of these thirtythree cases, thirty-one were delivered within twelve hours; and Dr. Collins further adds, in explanation of the small proportion thirty-three cases bear to the total number in the report, 16,654: -"Some cases of face-presentation, I am disposed to think, were not noted, delivery having taken place so very speedily as to excite little attention, and to cause it to be overlooked." (p. 34.) These statements coincide with my own observations in the same hospital. The total number of cases which came under my notice during three years, and the results of which had been noted were 5,699; of these there was not a single face-position which required aid in the delivery, nor did the labour in any occupy twenty-four hours. The only danger, therefore, which might arise from these positions, is the danger of meddling too much with them.

The reports of Drs. Hardy and M'Clintock, and of Drs. Johnston and Sinclair, confirm these observations.

## Time occupied in Labour in Face-Presentations.

Drs. Hardy and M'Clintock,				Drs. Johnston and Sinclair.		
					Total.	
Under	6	hours	4	8	12	
-	12	1)	6	15	21	
77	18	**	3	6	9	
19	24	25	1	2	3	
			-		-	
			14	31	45	

The cause of the facility of labour in these cases may be maily understood. When the chin rests against the plane of a schium on the right or the left side, the measurement of the bad between the chin and forehead is not greater than the compto-bregmatic; the face may descend as easily as the occipit, and, when the chin escapes under the pubic arch, it is passed forwards, and affords even more room for the escape of the bad than when the occiput is in the same position. The inchead glides over the perinæum; then the parietal bones, and atly the occiput. The increasing space required in the passage of the head may therefore endanger the perinæum; but the strain is not much greater than in an ordinary labour.

If the chin be unfortunately directed backwards towards either activities synchondrosis, then indeed the delivery is difficult; branse, as the face descends, the forehead and parietal bones have in succession along the pubic side of the pelvis, and the investing transverse measurement of the head makes it more much to escape under the pubic arch.

Dilutation of the Perinaum. When the head (which we will appose to be in the first position) approaches the outlet of the pins, and descends along the ischio-pubic ramus, it is opposed to the perinaum; when this takes place, every provision is made to obviate the effects of the struggle about to ensue. The mucous section flows much more abundantly from the vagina; the presenting part at first just touches the perinaum and then retreats the perinaum and the action of the uterus seems again to alter its tharacter—the pains are not so vigorous as before, but for some

time are shorter in their duration, and apparently less efficient The same caution is exercised to guard against violence here as in the first stage, and we often find the head or the membranes advancing and retreating for a long time before it descend so far as to allow the occiput and parietal bone to pass between the pillars of the pubic arch. During this period the structure of the perinæum becomes more and more unfolded; so that the delay which usually takes place in the labour at this point seems to arise much more from the feeble character of the pains, than from the resistance of the perinœum. At length, when the head is enabled to pass down so far that the occipital portion can emerge from the outlet, the perinæum suffers its greatest degree of distension. The occiput then first rests against the ischiopubic ramus, and, as it is expelled, rises upwards towards the pubic arch. It becomes a fixed centre, round which the remaining portion of the head moves; the whole force of every pain is, therefore, spent upon the perinæum; and, if the pains return with much rapidity or violence, there is danger that this part may be lacerated. In the majority of cases, however, the head retreats in the intervals of the pains, even where it seems to be almost expelled. At this time, also, the pains become much stronger, and are more severe and more trying to the patient than any that she has yet experienced. At the conclusion of this stage one or two very strong pains take place, by which the head is first protruded so far that it does not retreat, and it is then delivered. As soon as the head is born, we have a favourable opportunity of confirming the diagnosis as to the position. In the first position, the face is directed obliquely upwards towards the right thigh of the mother; because, when the shoulders and body of the child pass into the pelvic cavity, they enter the brim of the pelvis in the oblique measurement, opposite to that in which the head has passed: and therefore, as the child goes through the cavity of the pelvis, the thorax and abdomen correspond to the right or superior side of the pelvis, and the face looks in the same

When the shoulders are being expelled, the perinæum is again put upon the stretch, and is sometimes unequally protruded by the arms of the child; if care be not taken, it might be lacerated by them, but as soon as they escape there is no further danger. The uterus also ceases to act with the same force; the remaining pains are weaker, so that the body and limbs of the child are very slowly expelled.

Such is the manner in which the child, in its most usual position, is delivered, and this stage completed; but before entering mon the consideration of the third stage, we would direct attention to the mode in which other positions of the head are expelled, and to their influence on the perinaum. When the head passes out in the second position, the back of the child is to the right side of the pelvis, in the same relation as the thorax and abdomen are in the first position; the face therefore looks downwards to the left thigh. When the shoulders are passing the perinæum in this position, great caution is necessary, because we do not feel the hands and arms coming out, as in the first position; they might therefore press on the perinaum unequally, and lacerate it without your knowledge. When the face is towards the os pubis, the perinæum is very much endangered, in consequence of the greater distance to which the head must descend before it can pass under the pubic arch; and in order to do so, the direction of its motion is downwards and backwards, the reverse of what usually occurs: consequently the perinæum suffers a much greater degree of tension than in ordinary cases, and there is a proportionate risk that it will give way. In face-positions, from a similar cause, the perinæum also suffers; but not to the same extent, because the tension upon it is continued only until the thin passes under the arch, when the pressure is at once telieved.

THIRD STAGE OF LABOUR.—Separation of Placenta. As soon as the expulsion of the child is accomplished, the uterus ceases to contract for some time, the interval varying from five to fifteen minutes; then the contractions are renewed, for the expulsion of the placenta. This constitutes the third stage of labour. These contractions can scarcely be called pains; they bear no resemblance to those which preceded them, and are but little noticed by the patient. The manner in which the placenta is separated

time are shorter in their duration, and apparently less The same caution is exercised to guard against violent in the first stage, and we often find the head or t branes advancing and retreating for a long time before it so far as to allow the occiput and parietal bone to past the pillars of the pubic arch. During this period the of the peringum becomes more and more unfolded; 8 delay which usually takes place in the labour at this p to arise much more from the feeble character of the p from the resistance of the peringum. At length, wher is enabled to pass down so far that the occipital pa emerge from the outlet, the peringum suffers its great of distension. The occiput then first rests against t pubic ramus, and, as it is expelled, rises upwards to pubic arch. It becomes a fixed centre, round which tl ing portion of the head moves; the whole force of eve therefore, spent upon the perincum; and, if the pains r much rapidity or violence, there is danger that this pa lacerated. In the majority of cases, however, the he in the intervals of the pains, even where it seems to expelled. At this time, also, the pains become much and are more severe and more trying to the patient the she has yet experienced. At the conclusion of this st two very strong pains take place, by which the head i truded so far that it does not retreat, and it is then del soon as the head is born, we have a favourable o of confirming the diagnosis as to the position. In the tion, the face is directed obliquely upwards towards thigh of the mother; because, when the shoulders a the child pass into the pelvic cavity, they enter the b pelvis in the oblique measurement, opposite to that in head has passed: and therefore, as the child goes tl cavity of the pelvis, the thorax and abdomen corresp right or superior side of the pelvis, and the face looks in direction.

When the shoulders are being expelled, the perinæur put upon the stretch, and is sometimes unequally pro

the placenta by a few of these efforts, it becomes accuswit were, to its presence; and it no longer acts as a but remains with the uterus imperfectly contracted A very efficient means of supplying this want of irrito the uterus, is the pressure of the abdominal viscera strough it. When the abdominal muscles are strong, that upon the retiring uterus, compressing the intesad consequently the uterus, on all sides. These weak berefore, are greatly assisted and rendered effectual by aning efforts of the patient acting as a stimulus to the from without. But the abdominal muscles are not always on the contrary, in most instances, they are extremely consequence of our civilised habits. They are too often almost to a state of atony from the constant pressure of set; hence it follows that the uterus derives little or no from them, and the placenta is retained, not from any power in the uterus to expel it, but from a want of suffitimulus to cause the uterus to contract. There is no of the uterus, but only a suspension of its action. It is reason, and to supply this deficiency, that the pressure and on the fundus of the uterus, during the expulsion of id, is found so useful; and on the same principle, as we are again to explain, the application of a bandage round domen is always necessary, in order to give it proper This suspended action of the uterus, as a cause of d placenta, must be carefully distinguished from true inertia, to which we shall allude under the subject of

placenta may also be retained from irregular contraction of ous, either during the expulsion of the child or subsequence. One of the fundal muscles may contract, and not the or the fibres of the body may draw the uterus into a fical shape, leaving the fundus relaxed; or lastly, there is a spasmodic contraction of the fibres at the cervix, a kind of stricture. These irregular contractions may ather from the too rapid delivery of the child not allowing the time to follow its usual order of contraction, or from

that order being inverted, in consequence of too great relaxation of the fundus, the result of deficient irritation. The effect may be, that the cervix or body contracts first, and therefore retains the placenta. Sometimes an irregular contraction of the fundus may exist and not be perceived, especially if friction be used over the abdomen for the purpose of exciting uterine action. The anterior wall of the uterus remains firm and contracted, and the fundus seems to be so too; but if the hand be passed down towards the sacrum, and along the posterior wall of the uterus (where the placenta is often situated), it will generally be found relaxed, and, when excited to contract, often expels the placenta, which had been, perhaps, for a long time retained. All these irregular contractions must be corrected by endeavouring to restore the order of uterine contraction from the fundus to the os uteri. The stricture at the cervix is, however, an exception: it must be overcome, in the same manner as strictures in other places, by direct dilatation.

Another cause of retained placenta is adhesion, either partial or general; but this, like uterine inertia, is so constantly accompanied with hæmorrhage, that we must defer its consideration to that part of our subject.

When none of these causes operate, and the placenta is expelled in the usual time, the uterus does not altogether cease its contraction for some time afterwards. If it be left altogether to itself, without being properly supported, there is a danger that there may be too great relaxation of the uterus, and hæmorrhage and severe after-pains may arise from the attempts made by the uterus to discharge the coagula formed in its cavity. There is abundant evidence that this is one of the most frequent causes of after-pains; because these after-pains occur far more frequently with women who have had many children, than with those who are only pregnant for the first time. In the latter case, the abdominal parietes, having been only once distended, retain a certain degree of tonic contractile power, which is altogether destroyed by frequent pregnancies.

## LECTURE XIII.

## MANAGEMENT OF NATURAL LABOUR.

arro we have considered the process of parturition as an sting subject of observation, one of a thousand illustrations perfect adaptation of means to the end proposed, by which accomplishes her purpose. We have now to enter upon ore practical inquiry; the symptoms that attend the phenowe have described, and the treatment required to secure fety of the patient. We would therefore direct attention symptoms of labour, and to what are popularly called duties of the obstetrician."

MONITORY SYMPTOMS OF LABOUR.—During the period when erus is descending towards the pelvis, the size of the abdoliminishes, and the patient feels much less inconvenience istress than she did previously. Her respiration is less imand she has less anxiety. In some instances, the woman almost to forget what has been the constant object of her hts for many previous months. As the time of labour aphes, some monitors present themselves to remind her of the sometimes the nerves are very much pressed upon, so as use sensations of numbness or tingling down one or other of mbs: both are seldom affected. Occasionally the limbs are ly paralysed, so as to cause lameness. As the uterus begins ess more on the pelvis, the patient becomes awkward in her ge, and unable to walk even a short distance without e. The neighbouring organs soon show the influence of range going forward in the uterus. The bladder becomes ble, so that constant micturition is the result: we may, ver, find it in the opposite state, and the urine retained.

that order being inverted, in consequence of too great of the fundus, the result of deficient irritation. be, that the cervix or body contracts first, and theref the placenta. Sometimes an irregular contraction of may exist and not be perceived, especially if friction over the abdomen for the purpose of exciting uter The anterior wall of the uterus remains firm and cont the fundus seems to be so too; but if the hand be p towards the sacrum, and along the posterior wall of (where the placenta is often situated), it will general relaxed, and, when excited to contract, often expels tl which had been, perhaps, for a long time retained. irregular contractions must be corrected by endea restore the order of uterine contraction from the fu os uteri. The stricture at the cervix is, however, an it must be overcome, in the same manner as strictur places, by direct dilatation.

Another cause of retained placenta is adhesion, eior general; but this, like uterine inertia, is so constapanied with hæmorrhage, that we must defer its conthat part of our subject.

When none of these causes operate, and the place pelled in the usual time, the uterus does not altogethe contraction for some time afterwards. If it be left a itself, without being properly supported, there is a there may be too great relaxation of the uterus, and and severe after-pains may arise from the attempts a uterus to discharge the coagula formed in its cavity, abundant evidence that this is one of the most freque after-pains; because these after-pains occur far mor with women who have had many children, than with are only pregnant for the first time. In the latter a dominal parietes, having been only once distended, retain degree of tonic contractile power, which is all stroyed by frequent pregnancies.

or assistance. Towards morning, however, they inrequency and severity; all inclination to sleep is dissiwoman is anxious to rise in order to change her poswill move from place to place, and try every alteration that may seem to allay her suffering. Unless the we more than usual fortitude, and have great command ings, she cannot help giving loud and almost agonizing to the pain she endures. She generally avoids to take piration, or to use any straining effort. A short inspir-Howed by a shrill cry, which she cannot suppress. are accustomed to obstetric practice, you will learn to these grinding pains (as they are popularly called) caring pains that follow them, by the peculiar cry that es each. During the first stage, the irritability of the d rectum generally continues, so that the patient has a esire to evacuate them. A slight rigor may be obthe commencement; or she may be seized with sudden

The latter is often very serviceable in those who are oric habit; because the nausea and sense of exhaustion are often a means of controlling excitement, either in or in the circulation.

of the Practitioner. When any of these evidences prove r has commenced, the practitioner is generally hastily Sometimes, however, it is avoided until the pains seem He can no longer be dispensed with." If labour be by false pains, he is often summoned unnecessarily, ms being mistaken for labour. The medical attendant, that such a mistake is possible, and that, even if labour pally commenced, it will occupy some time before he f use, might procrastinate; he might be disposed to t he has quite sufficient time before him, and give but attention to the message he receives. A greater mistake committed. Any summons from one who has placed n your hands her own safety and that of her offspring, ear to her, should receive instant attention; neither are nsider the urgency as measured by your own, but by ssions of the case. You may be called upon without there being the least necessity for haste; but by promptitude you will gain a considerable advantage in strengthening the confidence she has already given you. The necessity, however, may be real, and not fictitious. Cases have occurred in which the patient has been delivered before the practitioner arrived; and it such an accident arose from any negligence on his part, he must have a much greater influence over his patient than is usual, if he can recover from the effects of it.

If it be a first pregnancy to which you are summoned, it is advisable that your introduction be not too abrupt. Caution in this respect is of still greater importance, if you be called to a patient to whom you have not been previously introduced; the mere circumstance of a stranger entering the apartment of parturient woman has caused a total suspension of her labour. Some preparation, in the way of announcement, is therefore necessary. For the same reason it would be prudent, when introduced, to direct your patient's attention as much as possible from contemplating the character in which you appear, to draw her away from the subject that brought you there, and to lead her to forget the office that you have to fulfil. You should not therefore catechise her too strictly about herself, or remind her of what is going to happen by too busy a display of preparation. A few minutes' conversation with the nurse is generally sufficient to learn every particular of importance; but your patient should only receive from you the words of comfort and encouragement The nurse, however, does not require the same forbearance. It will be your duty to ascertain from her every point upon which you desire to be satisfied. When the pains commenced? Their character? If accompanied by much, or by little excitement? The state of the bowels, and whether the bladder has been relieved? If your patient has any constitutional peculiarity? You should also examine the bandage, pins, ligature, and every trifling matter which might inconvenience you, if not prepared according to your views.

Having satisfied yourself, you can then return and engage your patient, if possible, in general conversation. You may thus form your own opinion of the character of her labour. If it be in between them long, you can engage her attention with facility; let if the pains be severe, these attempts at conversation had been be dispensed with. The patient should be left in charge of the nurse, because your presence as a witness of her suffering by become unpleasant to her, and would be embarrassing if it is therefore with the necessary evacuations: you may therefore to the neighbouring apartment, until you have determined the time for taking the first important step in your professial capacity.

Making a Vaginal Examination. Some have considered it as a Taker of the first importance, that this should be done as early a possible in the labour, in order that any correction which at be required in the presentation should be effected before it too late; as, for instance, if the funis or hand came down the head, if the head descended in a wrong position, or if, plans, the shoulder presented. Before any of these complicaas can be interfered with, the labour must have passed beyond Dommencement; the os uteri must be dilated, although the bution may be far from being complete. It would be precipitherefore, to require an examination before the steady fremacy of the pains gives evidence that dilatation is likely to be taken place; and therefore a vaginal examination very early the labour, when the pains return only slowly, would be un-Neither is the object for which such an examination stated to be made, of that importance which seems to be and to it. The funis cannot be interfered with, nor suffer Tvery dangerous pressure, so long as the membranes are entire. wihall presently point out the danger of meddling too much supposed wrong positions of the head, or with the descent the hand with it. The only position that should be ascertained the waters are discharged is the shoulder-presentation; if you examine for this too soon, when the os uteri is only billy dilated, and the presenting part above the brim, you ill to detect any presentation, and even if you do, you may, all, be mistaken in the result; the hand and arm may be and yet the head afterwards descend. It is certainly very

satisfactory to find out that the head presents as early as possible; but if this cannot be done in the beginning of labour, is no proof that the position is preternatural. If, therefore, decided advantage cannot be gained by making a very early examination, there is one strong reason for a little delay. When the patient is only enduring the first short pains that attend the first stage, she has always a great reluctance to be examined; all her natural feelings and prejudices are in full play against you: she submits very unwillingly, and complains loudly of the least pain or inconvenience you may cause her. Besides, it not easy to make a satisfactory examination; and if you full you may not so readily obtain her consent to its repetition When there is no absolute necessity, therefore, it is better to walt until these grinding pains increase in strength and frequency her mind is then absorbed in her present suffering; she is willing to submit to anything which may be of use to her, and is often very anxious to know whether the labour will be safe: you have also the great advantage of being able to make the examination perfectly, because the dilatation of the os uteri has made some advance.

The proper time for making a vaginal examination having been determined upon, the nurse should communicate your wishes which are now readily acceded to: she may then place the woman in the most favourable position for the purpose. The patient, loosely attired in her night-dress, should lie on the bed on her left side, as near to the edge as possible, having the knees drawn up towards the abdomen. You should then wait until the pain returns; and when it is about to cease, pass the forefinger of the right hand, anointed with cold cream, bear's grease, or any unctuous substance, within the vagina; examine carefully its condition, if it be relaxed and moistened with the usual secretion, or if dry and rigid. Examine the rectum through the posterior wall; this intestine, if empty, or nearly so, feels like a thick band; but if loaded, it projects into the vagina a surface so firm and irregular, that if it were your first case you might imagine it was the distorted sacrum, or perhaps the back of the child. You should also examine the anterior wall of the vagina; the indus of the bladder may press into it. Advancing slowly, the sibile finger may then be introduced, in order to make a careful commation of the os uteri. One finger is not sufficient for this mpose, unless the uterus be low in the vagina. If it be above brim of an ordinary sized pelvis, the fore-finger, or rather the wil of the fore-finger, just touches the anterior part of the mouth the womb, and may also touch the head if it lie near to it, but earnely any other information is gained; knowledge quite suffiment for those who only examine to find if the position be natural. but not at all adequate for the practitioner who is anxious to form a correct judgment of the time this stage may occupy, or of the which may retard its progress. The middle finger is loger, and reaches higher in the vagina: with two fingers, there s also a double advantage from the sense of touch. When you have acquired, from long experience, a perfect tact, then one figer may be sufficient. Both fingers being introduced, pass them first along the sacral side of the vagina; and, when you careet advance them further, direct them forwards towards the os paks. If the pains have ceased and the os uteri be dilatable, laving the membranes lying loosely within it, you feel what sem to be the irregular folds of a flaccid bag projecting into the Yagina; on examining this with caution, the edge of the os uteri, soft but more resisting, may be traced; and, if the finger be passed within it, you will sometimes feel, towards the os pubis, the had firm and round; you may, however, often fail, even though the head present.

The finger should not be withdrawn until you have ascertained the state of the os uteri, as to its dilatability and density, its exact direction, as nearly as you can judge, and the degree to which it a opened. The act of withdrawing the fingers sometimes induces a pain; you may then cautiously observe what takes place—the falsess ands light closing of the os uteri, the membranes descending as a tense bag, and the mouth of the womb tightly stretched over it: but beware of roughness, lest the membranes give way. Before the fingers are removed from the neighbourhood of the os uteri, examine the distance of the sacrum; and as they are being withdrawn, ascertain, if possible, the space in the pelvic



same time, to avoid the clitoris. In order to make careful examination, a little time may be required, d the pains may return; you should then cease until I noting only those points which have been mentioned it a rule not to withdraw from your examination un perfectly satisfied yourself as to the character of This having been accomplished, a second examination stage, unless it be prolonged, would be unnecessary.

Exploring the vagina and uterus in this way is a popular language of midwifery, "trying a pain," pain." And the object assigned to it by the patifriends, is to learn whether the labour is safe, and may last. You are, therefore, generally asked, and give a distinct answer to, both these questions. usually easy, and may be replied to in the affirmative have any doubt, you should not precipitately sound you ascertain that it is a cross-birth, as shoulder-called, you may state the nature of the case, and assistance required, to the friends of your patient, they may select a consultant in case you find it no be cautious not to alarm the patient herself: it is enough to inform her of her situation when you have to deliver her. In all other cases, the difficulty was

ler, it might seem pardonable to state a period for the terminais of her sufferings earlier than what you know will be the But such a practice would be extremely injudicious; ecause, when the time had passed in which she expected a relief ber anguish, her disappointment would lead to impatience of further suffering, if not a secret dread that the delay arose from e cause dangerous to herself. The result might be a suspena of the uterine action, and a still further prolongation of her abour. Along with this, you being proved, as it were, a false prophet, your patient may lose all confidence in your opinion and udgment. It is better, therefore, to err on the other side; and you are obliged to give a distinct and positive answer, to state speriod beyond that in which you expect that delivery will take place. No doubt this will give but little comfort to one who lequires every consolation, but it will induce her to summon that resolution and patience under suffering, which is the peculiar thibute of her sex; and it will enable her to go through her trial more favourably, because more patiently, than if she expeted more prompt relief. Her confidence, also, in your judgment, would be rather increased if your prediction prove to be was; and if not, she would much more willingly forgive a deeption which rendered her delivery an agreeable surprise.

If, from any accident, the membranes be broken during this stage, a second examination is necessary, in order to determine the presentation, and to ascertain any accidental complication which might occur. If, when the liquor amnii escapes, the dilation be slightly advanced, and the orifice of the uterus increased and an inch or two in diameter, you may expect more or less deay in the completion of this stage, unless the cervix of the merus be extremely thin. If it be at all thick, the irritation of the head generally renders it rigid, no matter how dilatable it may have been previously. In this second exploration, therefore, a very cautious opinion should be given as to the duration of the labour. The head, if presenting, may also be felt; but the position cannot be determined until the dilatation is more increased, and the head fully in the brim. The small portion of the head which occupies the slightly dilated os uteri is not suffi-

cient to determine anything about it; and if you pass the finger within the os uteri for the purpose of tracing the sutures and fontanelle, you will only succeed in exciting a great deal of unnecessary irritation in its tissue; nor can you define the characters of the position, through the os uteri, with sufficient accuracy to place any dependence on the evidence they give.

The time has not yet come to decide the position of the head. If this be true, then it is scarcely necessary to point out to you the absurdity of attempting to correct its supposed wrong position at such an early period of the labour. Yet this is one of the objects for which we are instructed that a vaginal examination is necessary, and are even recommended to rupture the membranes for the purpose of altering the position of the head.\* The band may be felt presenting with the head under similar circumstances. and the correction of this accident is also assigned as a reason for examining per vaginam as soon as possible. We very much question this necessity, or even the propriety of interfering with the presentation so soon. In order to correct this malposition, the hand and arm must be pressed up above the head, and there maintained until the succeeding pain drives down the head below it. If the os uteri be only slightly dilated, and the head not completely in the brim, you will find it very difficult to accomplish this, and in the attempt you expose yourself to a double risk. First, you may increase the irritation of the cervix uteri to a much greater degree than might otherwise take place. Secondly, in your manipulation, you cannot press up the handwithout also pressing against the head, which we have assumed has not yet passed into the brim of the pelvis. The effect of this might be, that you might just succeed in pushing the head more on the brim than it had been; and as a necessary consequence, the head not being able to pass into the pelvis, the action of the uterus would be directed more upon the shoulder; the side of the face, ear, and neck, might first be directed towards

<sup>\* &</sup>quot;If it be discovered early, it is certainly proper to rupture the membranes, and turn the vertex round, which is easily accomplished." Burns's Midwifery, p. 394.

the pelvic cavity, and then glide with the vertex towards the ime fossa, while the shoulder would occupy the brim; so that, after an attempt of this kind, you would find the arm coming down into the vagina rather more than before, and, after a few pains, a natural converted into a preternatural labour—than which there cannot be a more awkward accident. Therefore we would question altogether the propriety of meddling with the position thus early, because it seems to us far more probable that a little awkward manipulation would produce this derangement, than that it would take place if the position were not interfered with. In fact, nature would be less likely to blunder than you would.

What we have stated to you does not apply to the same position when the os uteri is more dilated, and the head quite within the cavity of the pelvis; we would desire, at present, only to Mint out our reasons for objecting to submit your patient to a very early examination, with a view of necessarily endeavouring to make corrections. The only accident which would seem to ander an early examination necessary is when the funis is proapsed. So long as the membranes are entire, and the liquor annii surrounds the funis, there is little danger that the circulation will be arrested. But if the waters prematurely escape, this alone renders an examination necessary; and therefore the finis may be detected in sufficient time to determine upon the tourse which it may be requisite to pursue. In ordinary cases of labour, such as we are now speaking of, the membranes addom give way until the second stage has made some progress, and often remain entire until the head of the child is almost expelled. You seldom, therefore, have occasion to make more than one examination during the first stage; and every informthion you require having been obtained by this, it is better then to commit your patient to the nurse's charge, and to retire to the next apartment until you are again summoned by the urgency of her pains, or by some new symptom presenting itself.

Duration of the First Stage. The time which the first stage may occupy, when there is no cause to render it tedious, is very

uncertain. It is, of course, much longer with women pregnant for the first time than with those who have had many children It may last from twelve to sixteen hours; but where this stage is prolonged, the following stages are generally short, and sometimes bear an inverse proportion to each other. You cannot take time as a criterion to judge when the first stage is about to cease and the second to commence; but you may do so by closely observing the pains. We have described to you the character of the grinding pains that accompany the first stage; they frequently merge into the bearing pains so gradually, as to require some attention to observe the change. You may remark, when the pain comes on, that the patient is obliged to grasp firmly whatever is within her reach; she retains her breath more than before, and sometimes makes an involuntary effort to force the child down. Her voice also alters, its tone is more subdued, and she seems more patient of her suffering than before. Sometimes the complete dilatation of the uterus is marked by constitutional symptoms; there may be a slight rigor or vomiting, perhaps a strong inclination to go to stool. Whenever any change of this kind is noticed, you have just reason to suspect the commencement of the second stage; and as you cannot tell with what rapidity it may proceed, the bed should be properly prepared for the patient's reception.

Mode of Preparing the Bed. A skin of morocco-leather, or a broad piece of India-rubber cloth, is usually placed next the bed, to protect it from being stained; and a blanket, folded very wide, enclosed in a soiled sheet, is placed underneath the hip of the patient as she lies upon the left side. They should be so fastened together, that the whole may be removed at once without difficulty. By this means the discharges are absorbed, and prevented from soiling the sheets of the bed; while these foul clothes may be withdrawn after the delivery of the patient without disturbing her. Triffing as these details may appear to you, we must direct your attention particularly to them, because of a practice which is prevalent among the lower classes here, that seems both inconvenient and dangerous. The parturient woman generally sits at the end of the bedstead, without making any change in

s may be, and often is, done without injury to the patient; collect the risk that is run by moving the patient so much, me when she should be kept perfectly quiet; and if an at should happen, if hæmorrhage should result from it, your perplexity. Her dress is in your way when you command the uterus. You may not have time to get the down again, so as to place her in a horizontal position; asving her for the purpose is dangerous. You are surd with a host of unexpected difficulties, and her life might the sacrifice of a little want of forethought. You should, re, always take care that your patient is loosely attired in int-dress, and placed on her left side in the bed, guarded manner described, when there is any evidence that the age is near its completion.

en the os uteri is quite dilated, and the bearing-pains bepare decided in their character, the patient is anxious to
er body fixed as much as possible during their continushe therefore requires to have something within her reach
e may grasp firmly. Her feet also should be supported
the pain lasts. For this purpose a sheet is generally
at to the bed-post in such a manner that she can easily
y it, while the nurse may support her feet by pressing a
against them. It is a very common practice to place

observe that when the labour has so far advanced as to render the aid necessary which this is intended to afford, much more efficient assistance may be given by the nurse, if she raise the knee moderately with one hand and support the foot with the other.

Hygienic Instructions, When the second stage of labour has commenced, the patient experiences much more fatigue then she did before; as it continues, she feels exhausted by the struggle becomes heated and thirsty, and often grows dispirited. Hence has arisen the pernicious practice of giving wine, spirits, and other such stimulants "to help her pains." You must impera tively forbid heating drinks of all kinds to be given to the patient Such a practice would not only increase the sense of exhaustion when the stimulus had passed away, but it might also contribute to increase greatly any tendency to inflammation which migh exist in the passages, while the head is passing through the pelvis. Barley-water, tea, thin gruel, or such like drinks only should be given. A free ventilation of the apartment should als be secured; and at the same time care is necessary that you patient be not exposed to any draughts of cold air. For this purpose you must not fall into an opposite extreme, and, as i sometimes done, have the bed-curtains closely drawn to preven all access of the air. In this manner the parturient woman ha been kept in a vapour bath of impure air; an excellent excitat for miliary fever. On the contrary, it is better to have no cur tains, or at least to have them only drawn sufficiently to preven exposure to a draught of air. It is also very essential to have few persons in the room as possible. You should only permit of person to remain with the nurse, the nearest married relative your patient, with whom she will feel no restraint, and to who she can communicate freely all her feelings. The officion assistance of friends should be sedulously shunned; it is often extremely disagreeable to the woman herself to have these wi nesses of her suffering present; and, although she may silent tolerate the inconvenience because she is conscious of the kin motive which actuates them, still it is embarrassing and unple sant. To the practitioner it is still more inconvenient, becauonding effect upon the patient. She soon becomes ed, and fearful for the result; so that, at a period when it important that the action of the uterus should continue ly and efficiently, it may be altogether suspended. When lave given you not only experience but station in your ion, you may not be subjected to such misgivings; but be , that, in the opening of your career, when you are as yet le known, and have to build up your reputation, you will ected to these inconveniences, if you are not decided in ing them.

## LECTURE XIV.

MANAGEMENT OF NATURAL LABOUR (continued.)

STAGE. — Vaginal Examination. When the second about to commence, the proportion between the head and

resource in the increased discharge of slimy mucus which me flows abundantly from the vagina. But, if examinations repeated too often, and the passages become irritated, this decharge is diminished; it may be arrested, and the parts become hot and dry; or perhaps it may be succeeded by a thin sero discharge, that rather increases the irritation. This change therefore, in the character of the discharge, serves as an use indication that caution is required in this respect. It had no been lost sight of by the older practitioners, who supposed the the frequent introduction of the fingers into the vagina dried the parts by absorbing the discharge.

The first object, then, of a vaginal examination in this stage, to determine the proportion between the head and the pelvis. I this purpose the fingers should be passed carefully between the in the interval of the pains; being directed, in the first instance between the os pubis and head, and moved round on each sid The ear can be felt if there be sufficient space for the head pass; but, if the head be high up in the pelvis, the finger a only just touch it. If the ear cannot be reached readily, at there seem to be a want of proportion between the head and pelvis, you have still another means of testing the degree of di proportion, by examining the presenting part of the head. Whe this is only slightly compressed, the scalp is simply folded puckered by the closing of the sutures; as the compression increases, these folds merge gradually into one, which ultimate forms a distinct tumour. This continues to enlarge; so that, cases of impaction of the head, it is sometimes of great magni tude. The manner in which this change takes place, and it degree, generally afford sufficient proof of disproportion. If the tumour form very slowly, and never increase to any great size you may infer that the head will pass safely through the pelvis but if, on the contrary, it increase rapidly, and attain a gro size, the indication must be unfavourable.

The second object of a vaginal examination is, to ascertain the exact position of the head. We have already pointed out the means of distinguishing the different positions from each other. We shall, therefore, at present only allude to those positions.

which we are directed by some authors to alter as soon as they are found out, in order to prevent the head from becoming impacted in the pelvis afterwards.

One of these cases is when the head enters the brim in the left fanto-cotyloid position (p. 192). It is assumed that this cannot pas safely, but will cause great delay and difficulty in the abour: therefore, it is laid down that the correction must be made the moment the position is ascertained. We have already tated to you the experience of Naegele, confirmed by other thervers ; that nature, if left to herself, will correct this deviation by rotating the head into the right occipito-cotyloid position. The probability is, therefore, that by meddling too soon you may prevent this, and prematurely force the head into a more unfawurable position than it has occupied. The moment this position is detected is not, therefore, the time for interference; it is nore advisable to wait and observe the course the head will jursue. It may correct itself; it may advance and be delivered a the third position without injury; it may be arrested. The hat is the only condition which would justify your aid. The head may then be displaced from its situation, and pressed back in the interval of the pains, and a very slight rotation is generally suffident to make it glide easily in its proper direction when the pains return. The very same observation applies to those instances where the head and hand, or even arm, descend together. This accident is often the result of the pelvis being too wide, and, if so, both will be expelled without difficulty; but sometimes the arm comes down a little too much and prevents the head from advancing, or the head may be arrested by the hand descending with it. In either case the hand or arm can be very easily pushed back when the pain ceases, and so maintained intil the next pain advances the head, which generally passes down very rapidly as soon as the correction has been made When the head is in the cavity of the pelvis, there is not the ame danger of displacing it as when it is only entering the brim; and consequently, our previous observations on this accident (pp.214-215) do not apply to the present case. You should not, therefore, when these deviations occur, too hastily assume that the head cannot be delivered. It is more advisab until they become causes of delay.

The third object of a vaginal examination is, to note gress which the head makes. In natural labour, where culty presents itself, a very few examinations, at proper will be sufficient for the purpose, because its advance is quite obvious; but in difficult labours, where the head very slow progress, and there are other causes of emba present, more care is required; their consideration, he beside our immediate subject.

Supporting the Perinaum. The position of the her relation to the pelvis, having been ascertained, the nex attention is its descent upon the perinæum. You m fore, be prepared to give the peringum support the suffers any degree of distension. The plan which I ! the most useful and convenient to adopt at this period is the following:-To sit behind the patient as she lies left side, the back of the chair being towards the he bed; and while the head of the child is passing through cavity, to press moderately with the left hand over t the patient. Counter-pressure employed in this way is grateful to her, and seems to give her some relief; it a in keeping the pelvis fixed when the head is passing næum, the most important part of this process. being so employed, the right can be used to support næum. A single fold of a fine napkin should be pla the edge of the perinaum, and the right hand so at the fold of skin between the fore-finger and thumb sl respond to this; the fore-finger and thumb passing or of the vulva, and the palm of the hand, resting agains fold of the napkin, applied to the posterior part of the By this means you have full power to make any counte with the palm of the hand which may be necessary fingers being quite close to the edge of the perinæum a you can easily trace the margin of the perinæum, an head if necessary. Thus one hand fulfils the office assigned to two, and enables you to grasp with the left

plies to prevent the patient from moving away too suddenly inseverer pains come on. If, the head being expelled, this is a longer necessary, you can employ the same hand to support uterus during its contraction in expelling the body of the Beside these advantages, this method is certainly less fining. The only inconvenience of it is that, when the funis taked round the neck of the child, so as to make it necessary it it should be removed, or that the delivery of the shoulders had be assisted, the hands must be changed, that the left may mart the perinaeum and the right make the required correction.

We shall suppose you, therefore, thus prepared to give the perithe required support; the only question is, when your The young practitioner, fully impressed the importance of preventing laceration, hardly ever comthe mistake of being too late in attending to this point. He my generally errs on the other side: he presses against the enceum a great deal too soon, and causes unnecessary heat and mution in consequence, which rather retards its distension. Its mistake arises from supposing the perinæum in danger the ment the head touches it. We have explained to you that be lead alternately touches and retreats from the peringum, often la long time before the perinæum suffers any dangerous dis-You must not, therefore, be too precipitate; it is better wait until you feel the head protruding, with each pain, through by rulva; because at this time it is getting gradually upon the belie-public ramus, against which it rests, while the anterior part the head presses with considerable force against the peri-Dam. Caution is also necessary as to the manner in which the Jemseum is supported. The object in view is to obviate the flets of too violent distension. The pains at this time are very Dayual, sometimes weak and again very strong; you support the pringum against the latter by moderate counter-pressure, to revent accidents; but against the former no such precaution is cossary: you must not, therefore, press with every pain indifmently, but only when the uterus is acting with great force. gain, when the head is nearly protruded through the vulva,

anxiety to save the peringum may be the cause of its respectively. For instance, if you attempt to draw the peringum back the head, it will be stretched too suddenly over the high measurement, the widest part of the head. If, on the other you posse the head too much forwards, pressing with the from the sacrum towards the os publis, the same effect will be duced in a different manner; you force the parietal profit the head too rapidly through the vulva. At this point is to continue the same moderate counter-pressure, to make along the hellow of the hand, in the same manner as it along the curve of the sacrum.

Funis round Child's Neck. When the head is passing the vulva, you should direct it forwards; and when it is cred, examine carefully lest the funis be coiled round in If such be the case, and it be only a single coil, it will go be sufficient to draw down a little more of the funis, and it. A single coil seldom retards the delivery of the concentration are with, and the child placed in great distrangulation. In these cases, as much of the funis as should be brought down, and the coils so loosened may be drawn over the head. There are cases where the bedone, and the only resource left is to tie and divide the and extract the child as soon as possible, in order that remay be established. This operation is hazardous to the

I pulsion of Shoulders. If the funis be not about the periodeum must still be supported until the next pair a tardy one, expels the shoulders. The same caution excressed as before, lest the arm or hand should lacerate means as it is coming out of the vulva. This should be har's attended to in second positions of the head.

life, and can only be viewed as the lesser of two evils.

Senemoes the shoulders are very wide, and requisions: this may be done by placing the fore-finger of the within the axilla of the child's arm, on the public with the left hand. As

dders and thorax of the child are delivered, it can respire, o far, beyond danger; no haste should, therefore, be used cting the body and lower limbs; it is preferable, to allow us gradually to expel them, and, while it is doing so, the I should be immediately applied over the fundus, in order tain a moderate pressure upon the uterus while it is ng towards the pelvis. This should never be neglected; it insures a uniform contraction of the uterus, and often ulsion of the placenta into the vagina. When the child is ch is the anxiety to remove it as soon as possible from the that the tying of the funis is the immediate occupation tendant, while the uterus is generally left to itself. The assigned by friends for this haste, is their fear lest some may happen to the child: it may get cold, &c. Just as e real cause is a little natural desire to see and exhibit should not, therefore, suffer yourself to be hurried by licitations, nor withdraw your hand from the uterus until re secured it, either by a temporary bandage applied in aner we shall presently describe, or by the hand of the f she be sufficiently intelligent to understand your object. er plan is more convenient.

gement of the Funis. When the uterus is thus prevented ain relaxing, you may attend to the funis. The delay is ble to the child, because time is allowed for the transin the placental to the pulmonic circulation, by which the completely established before placental life altogether This is of great importance to the health of the child. the pulmonic circulation is perfectly effected, that in s often ceases; but if its pulsations be felt, the funis may if the child cry strongly. The manner of doing so is by g a strong ligature of housewife thread, bobbin, or narrow out two inches from the umbilicus, and a second about an ther: the cord is then divided between the ligatures. You careful to see the part of the funis you are dividing, lest the or any other part of the child should be in your way, and also to examine the cut surface of the umbilical portion. The hould be squeezed out of the vessels, and the surface wiped

with a napkin, for the purpose of detecting any oozing of hamor rhage that might take place if the funis were not properly tied. The child may then be removed, and the separation of the placenta attended to.

THIRD STAGE.-Removal of the Placenta. If the bandage have not been previously used, the hand may be again applied to the fundus uteri, which is generally found in a semi-contracted state With a little attention, you will presently observe it become harder from contraction, although the patient scarcely complain of it. A very moderate pressure on the fundus at this time is often sufficient to expel the placenta completely out of the vagina; but if not, it can be drawn out by the funis quite easily, directing the funis forwards in the axis of the vagina. But if the uterus shou not obey the stimulus at first, it is always more advisable to wa for some time than to use too much irritation. Neither should an attempt be made to remove the placenta by the funis alon By great violence, the funis may be broken, or the uten inverted; and by pulling frequently, though less violently, the funis to ascertain if the placenta be separated, an irregul contraction of the uterus is often excited. Passing the finge into the vagina is often sufficient to excite the action of il uterus; and drawing the placenta by the funis may excite it a more. If the uterus contract, and the order of its action be a secured by the means already pointed out to you, the great pr bability is that, it being nearly emptied of its contents, the low fibres will contract first, and retain the placenta. Thus, by much pulling at the funis, the placenta may be retained. By little caution, and by moderate pressure on the fundus of the uterus, you will generally secure its favourable separation. The being accomplished, the next and concluding object of attention is to preserve the uterus in that state of contraction which is necessary to prevent subsequent hæmorrhage.

Abdominal Bandage. We have already explained the enciency of the abdominal muscles, when they are strong enough to contract firmly upon the retiring uterus. But when the muscles are rendered inert from the constant distension to which they are exposed, they can give the uterus no support; and there is, consequently, a constant risk that the uterus may again relationship.

our out blood, if this want be not supplied by artificial Hence the use of the abdominal bandage. The mode lying it demands attention; because it may be made usemischievous according to the manner in which it is yed, and many of the objections raised against its use have ounded upon its improper application. Sometimes it is so tightly over the uterus, that the patient can hardly e; or it may be so applied that the least motion of the t displaces it, and it becomes twisted round the loins like a All these inconveniences, distressing to the patient and for the intended purpose, arise from a mistaken view of e the bandage is meant to fulfil. The waist is to be comd into shape, and therefore the patient is bound up so that she can seldom tolerate the pain of the bandage: it loosened, and perhaps altogether discarded. A bandage ly applied may be made to effect two objects; one, to t the pelvis by compressing it as much as possible; another, port the uterus by moderate and equable pressure over the abdomen. The articulations of the pelvis have undergone degree of tension during the passage of the head, and a in sometimes remains, which is much relieved by counterre. The uniform pressure of the intestines is necessary to t relaxation of the uterus. The mode of applying the e for these purposes is to commence by drawing it evenly e pelvis, its lower edge, when so placed, being about one low the trochanter; this margin should be drawn as tightly patient will bear, and pinned securely below the right tror. The bandage should be again drawn and pinned in a manner across the ilia, so that the pelvis may be embraced portion of the bandage, about three inches in width, as as possible. This having been accomplished, the remainder bandage should be drawn and pinned with moderate ess, but equally from the pelvis to the diaphragm, so that the of the abdomen be included within it, and not permitted ect over the bandage in the unsightly manner which may mes be observed. When the bandage is properly applied, tient always experiences comfort from it-a sufficient eviof its utility.

There is a great variety in the materials employed for bandages. Sometimes a piece of calico or a napkin is used; and, again, you will find them more complicated in their mechanism than the most fashionable corset-both are equally inefficient. Calico and diaper are too unyielding, and, if pinned tightly, will hurt the patient; nor can they be employed unless they are so loose as to be useless. The obstetric corsets, if we might so call them, for drawing in the waist, are liable to all the objections which have been urged against bandages. It is necessary that a bandage should be elastic, so that, while it supports the abdomen, it may yield readily to its action; it should be sufficiently thick or firm not to wrinkle easily, should be soft in its texture, and at the same time strong enough to bear being tightly drawn. A double fold of flannel would answer the purpose, and has the advantage of being easily pinned; but if you remember the intention the bandage is to fulfil, your own judgment will best direct you to the kind of material which will suit your object.

From what we have stated, you will perceive that a bandage may be made useful or injurious, according to the manner in which it is applied. You should not, therefore, entrust this simple but important part of your duties to another. It is sometimes a practice to commit to the nurse its application; it would be imprudent to do so in the first instance, or so long as there is any risk of hæmorrhage from relaxation of the uterus; it will be sufficient time to leave its management to her when your patient is secured from danger. If ordinary discretion be used, it may be applied without offending the feelings of the most sensitive person; and therefore no motive of false delicacy should prevent the practitioner from fulfilling this essential duty.

When the bandage is applied, the folded sheet, etc., that had been placed under the patient during labour should be removed, and replaced by others dry and warm, in order that she may be induced to sleep, and that she may not afterwards be disturbed. It is more necessary to attend to this, because it too frequently has happened that hamorrhage has been induced by imprudence on the part of the nurse, who, when the attendant has left his patient, immediately sets about making her "dry and comforts"

in doing so, causes so much excitement in the process g her, and changing the bed-clothes, that hæmorrhage ult.

tient, after her delivery, always experiences a nervous ten very slight, but still sufficiently obvious. Although her relief from suffering, and in the birth of her offhe still feels depressed; and this period, beyond all a that in which perfect repose is absolutely necessary. In caution cannot, therefore, be exercised to prevent her turbed. Having secured to your patient perfect quietfreedom from interruption, your immediate duties are d; but still caution is necessary, and, although you etire from the apartment, it would not be advisable to house for at least an hour after her delivery, or until into a sound sleep.

ion of Placenta without Hamorrhage. It sometimes that the placenta is retained after delivery, without any age taking place; and although we shall have again to tention to these retentions, when accompanied by floodw words may not be out of place here, in reference to ry frequent retentions, where no hæmorrhage arises. ses generally assigned for retained placenta are either the uterus, hour-glass contraction, or adhesion; but one frequent, if not more so, is suspended action of the uterus. ormer causes are generally attended by hæmorrhage, but latter it is very seldom the case. The placenta is renerely because the uterus is deprived of the necessary to cause its efficient contraction, In such instances, contractions of the uterus not being supported, the organ as it were, accustomed to the presence of the placenta, ains imperfectly contracted about it, without any further expulsion. In this way, the placenta may remain two -six hours in the uterus without being expelled. If the ch we have laid down be observed, and a steady but e pressure be maintained upon the fundus of the uterus its contraction, this will seldom happen; but if the be not separated then, it is better to wait for some time,

and again to excite the uterus to contraction. For this purpose, the fundus should be brought, as nearly as possible, towards the centre of the pelvis, and grasped firmly with both hands; as soon as it becomes hard, strong pressure upon it is generally sufficient to cause the expulsion of the placenta. If this should not be sufficient, do not use any violence; rather let the nurse, under your direction, maintain the fundus in the same position, while you pass the fingers, and, if necessary, the hand, into the vagina, in order to stimulate the uterus to contraction. For this purpose the funis should be held firmly in the left hand, and the fingers of the right hand passed along it within the vagina. Sometimes this alone excites contraction; but if not, all the fingers, in a conical form, may be introduced within it as far as the os uten. In doing so, you will often find a large portion of the placents lying at the upper part of the vagina; you may even feel the insertion of the funis; but do not attempt to withdraw it: pass the hand still towards the os uteri, and, by irritating it, the portion of the placenta that lies within the cervix is often detached, so that the whole placenta may be removed. If this be not sufficient, withdrawing the hand along the vagina for a short distance will excite contraction; but if both means fail, the fingers must be introduced in the same manner within the or uteri, to dilate it, when the upper part of the placenta may be grasped, and the whole removed. The assistant should press firmly on the fundus uteri while the hand is being withdrawn In many instances the placenta is found in the upper part of the vagina alone, and can be very easily removed; but no attempt of this kind should be made until the hand has passed above it, so as to have it completely within grasp. When efforts are made to draw the placenta away by the lower portion, there is always a risk that it may be broken in the attempt, especially if it be caught by the cervix uteri. In one instance which came under our notice, a small portion of the placenta was adherent to the neck of the uterus, and the remainder being dragged away in this manner gave rise to hæmorrhage that terminated fatally.

Another cause of retention of the placenta without hamor-

thage, is irregular contraction of the uterus. This is excited, as have stated, by drawing the funis frequently, for the purpose of ascertaining whether the placenta is separated. It may be stached to the lower part of the uterus, which is thus excited contract. Sometimes, when the order of uterine contraction is at maintained, the circular fibres of the body contract, and not fundus. To remove this irregularity it is necessary, not only b grasp the fundus firmly, as before mentioned, but to pass the lagers over the posterior wall, as low as the abdominal parietes will admit; when, if the irritation excite the relaxed portion, the order of uterine contraction is instantly restored and the placenta will be immediately expelled. In these cases of retention, it is aldom necessary to wait longer than an hour to have it removed; and if the uterus be carefully attended to during its contraction, and firm pressure afterwards used if necessary, you will very sidom have any occasion to wait so long, or to pass the hand into the uterus to withdraw the placenta.

### LECTURE XV.

# DIFFICULT LABOUR.

In first exception to the definition which Denman has given of stral labour is that in which labour exceeds twenty-four hours. It then becomes Difficult Labour. According to this definition, then the vertex presents, and no accident occurs, time alone which seem to be the criterion which is to determine the class to thick labour is to be referred. This, however, is not the case; the definition is only of general, not of universal application; for this, on the one side, there are cases in which labour is so me, and the obstruction so great, as to render it difficult, nay, a dangerous, before twenty-four hours expire, there are also ances, on the opposite side, in which labour may be prolonged

far beyond the prescribed period, and yet present no difficulty to the practitioner but that of sustaining his patience.

CLASSES OF DIFFICULT LABOUR. The causes which render labours difficult vary exceedingly. The delay arises sometime in the first, sometimes in the second stage. In one instance, the constitution of the patient, or the rigidity of the passages, may retard the delivery; in another, disproportion between the head of the child and the pelvis may impede the progress of labour. It is necessary, therefore, to classify these causes; and for this purpose we would include, under the head of difficult labour, two subdivisions:-

- 1. That in which labour is merely prolonged beyond the average period, without being, at any time, unusually severe; it is then called Tedious Labour.
- 2. That in which, without reference to time, there is 1 powerful struggle carried on by the uterus to overcome some unusual resistance. This may be called by the expressive term Laborious Labour.

The causes which produce the former are most frequently me with in the first stage of labour; those that give rise to the latter, generally occur in the second. These divisions embraces great variety of causes, which may be classed under several heads.

TEDIOUS LABOUR may depend either on inefficient action of the uterus, or on rigidity of the passages; and as its consideration will form the subject of the present lecture, we place these causes before you in a tabular form, in the order in which we shall consider them.

## Inefficient Action of the Uterus from- Rigidity of the Passages-

- 1. Over-distension of the uterus.
- 2. Extreme obliquity of the uterus.
- 3. Gradual escape of the liquor amnii,
- 4. Hysterical excitement.
- 5. Mental despondency.

- 1. Rigid os and cervix uteri.
  - 2. Contracted vagina.
  - 3. Rigid perinæum.

INEFFICIENT UTERINE ACTION .- 1. Over-distension of the Uterus This cause of delay is not very commonly met with; but, where ars and prolongs labour, the uterus is so immensely disit by the liquor amnii, that, like the bladder in retention of
it is for a time paralysed. The accumulation of fluid
from a diseased condition of the amnion, which is often
ned and marked with broad patches of a white colour, as if
had been effused between it and the chorion. This
ning of the membranes and dropsy of the amnion generally
pany each other; but the delay in labour principally
is upon the latter cause.

en the uterus is thus over-distended, the grinding pains, last only for a moment, return with longer intervals bethem, and sometimes they cease altogether; so that, if the be unknown, the patient may remain for an indefinite time with these inefficient spasms of the uterus, or labour may te suspended. Very little attention, however, is sufficient et this condition of the membranes. In such cases, the generally small; and the evidence, through the abdomen, presence in the uterus, is not so manifest. The feetal heart annot be heard; the placental murmur is indistinct, or e absent; at the same time, the abdomen is greatly dis-, and the sense of fluctuation over its surface general. the vagina is examined, no presentation can be felt; the ranes, tensely distended by the liquor amnii, alone prothrough the os uteri. Such evidences are sufficient to nine the cause of delay; and, as the dilatation of the os has generally made some progress with these tardy and pains before the case can be considered tedious, the liquor may be discharged without much risk of the os uteri beg irritated; nevertheless, caution is necessary in this simple ion, because, if the liquor amnii be discharged suddenly, olent gush of the fluid may derange the position of the or bring down the funis into the vagina. The safer plan be to puncture the membranes within the os uteri as high can reach, so that the liquor amnii may escape gradually. may be done with the elastic catheter. When the uterus relieved, the pains increase in strength and frequency, so bour generally proceeds rapidly to its conclusion.

2. Extreme Obliquity of the Uterus is the next cause of delay-This obliquity may be either lateral or anterior.

When the obliquity is *lateral*, the uterus is generally inclined to the left side of the abdomen in place of taking its more usual direction to the right side: it rests very much upon the iliac fossa, and the pains, which may be strong, have little effect upon the os uteri, although it be quite dilatable; this circumstance will excite a suspicion of the cause, but an examination of the uterus through the abdomen will at once determine it.

Mere change of position is sometimes sufficient to remove this difficulty. Those pains which had been short and irregular, and consequently ineffectual, while the patient lay on her left side, become steady and efficient when the patient changes to the right side. The dilatation of the mouth of the uterus proceeds rapidly to its completion, and the labour, that had been lingering for hours before, is often terminated by a few strong pains. If this mode be not sufficient for the purpose, a broad bandage may be applied round the abdomen, and drawn towards the right side as firmly as the patient can conveniently bear.

Excessive inclination of the uterus forwards may arise either from the pelvis being so shaped that the axis of the brim is nearly horizontal, or from weakness of the abdominal parietes; possibly from both combined. In these instances, the uterus is sometimes so completely displaced, that the direction of the fundus is reversed, and the uterus hangs down over the pubes so as to rest upon the thighs. Labour is, of course, impeded; but if the bandage be so applied as to draw the uterus gradually upwards, or even if it be supported by the hand during its contractions, labour will often advance rapidly to a favourable termination.

It is advisable to allow the patient to lie more upon her back than on her side; but, as there is a great difference in the position which different women find most favourable to their pains under these circumstances, we sometimes meet with cases where they lie, not only on their side, but with the body completely across the bed. This difference may depend upon the cause of the obliquity; if it arise from weakness of the parietes of the this deviation; if it depend upon a horizontal aspect of this deviation; if it depend upon a horizontal aspect of this, the body would be inclined forwards, to lessen its distrom the axis of the uterus. It would be unsafe, however, rise too much on such a subject; and happily it is the less ry, because nature generally prompts the woman to adopt ition which is the most favourable for her. You should ist, therefore, too much on any given position, but rather r patient try different postures, and accommodate yourself which she feels to be the easiest.

mouth of the uterus is often greatly displaced in these it is directed very much towards the promontory of the and hence, in order to correct the obliquity, some have that the forefinger be passed within the opening, and the drawn towards the centre of the pelvis. How is it posalter the pendulous fundus by such means? But if, in correct the position of the fundus, it is also necessary be raised by the opposite hand, the introduction of the not required, because then the mouth of the uterus will itself. Such means, therefore, should be avoided, because a calculated to excite irritation.

serious mistakes, however, may be made as to the cause when the os uteri is absent from its usual situation. tance; when the anterior lip has become so thin as to le the membranes, it may be mistaken for them, and this tenuity sometimes takes place when the anterior lip s the most dependent part of the uterine tumour. The night easily be attributed to rigidity of the membranes, supposed membranes-that is, the uterus-accordingly ed. Another error is, the supposition that the os uteri is losed by a cicatrix, or is imperforate. A mistake of this s led to the sagacious operation of dividing the cervix to n artificial os uteri: such an instance has been mentioned ees (Midwifery, p. 90.) You should, therefore, always e most careful vaginal examination, and you will seldom finding the os uteri (often not larger than a sixpence) upwards towards the promontory of the sacrum.

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: Grainal Essive of the Liquor Annii is t take place when the os utell militari-in other words, when the latter is so long exspecies of the head of the child as to become imitate series is rigidity of the os uteri; and its consideration neight under that head. But if the os uteri be all ...... mi not easily excited by irritation, this accide . ... six effect, and hasten rather than retard deli-. Fractical Excitement is sometimes met with. . It most frequent affections of the female v is a secrical females become pregnant, and the and the arrives, the practitioner has often to us ... we may at a case far more embarrassing than the ...... recliments obstruct delivery. s is the of her trial approaches, the pati as an excited; she has perpetually before h constantly her attention is constantly agreemstance that has reference to the Consequently, when at length we an eventement is strained to the commenced when it is susp- get a week ved, only to be again in becoming in this irregular co

and when this is the considerably be a subject and when this is the considerable was not very tolerant of subjects, and never anti-

with an cicus. She may possi

essary in its management. Conversation should not be ted within the hearing of the patient; none but her immefriend and the nurse should be allowed to remain in the and while you use every exertion to give her encourageand, if possible, to lessen her excitement, you must not yourself by hasty promises. With regard to medical ent, your chief attention should be directed to the state of wels. If it be in your power to enter upon a course of ent before labour has commenced, your chance of success greatly increased. In many of these cases, there is great ation previous to parturition; but in all, the evacuations in unhealthy character, dark, viscid, scanty, and offensive. minary course of alteratives, combined with stimulating ats will correct this condition, and lessen the hysteric ce; but if you are not given the opportunity for such ent, and are for the first time called upon to take charge case when labour has actually commenced, it would be ble to have an assafætida enema given before labour has iny progress. Scybala lodge frequently in the rectum and intestines, causing great irritation, which contributes to the action of the uterus. When the bowels are unloaded, form may be administered in moderate doses with great age. When it is given sufficiently to relieve the intensity of ins, the patient is immediately conscious of the difference; comes quite tranquil, grateful for the relief afforded and labour proceeds more rapidly to its termination. are no cases, in which the advantage of moderate doses of form in relieving pain without inducing sleep is more table than these hysterical cases. Instances of this deon are embarrassing to the practitioner from their tediousbut seldom terminate unfavourably if they be properly 1. The same remark does not apply to the next cause of

Mental Despondency. This source of difficulty is but alluded to by the majority of obstetric authors. "Deng passions of the mind" are enumerated among the causes tard labour, but are not dwelt upon in proportion to their mornance. Firemately, expresse cases of a mes with the instances might be quoted in a result of such a masse. Cases are occasionally meaning reality found after labour, which emplaced in this way, if all the circumstance material of the less the few instances that he more seemed it aims of such an interpreta least would understood have taken place, he impression from at obvious.

Start menty had were her to the bone before the armond the merus weak; notwit was tendered in an hour after admission; no place and the placetta was separated with

A pose emissibel within entered the Du

The last out of was followed by the most a which the most is times care and attention; shall be greated from the time that will the abilities of stimulants and main make of the strates, she grainally recovered, where powerty and sharvather produced their case particles in which some cause mind also produces an extreme nervous

cannot relieve, because we cannot "minist diseased." An instance of this kind occurred

tution the following year.

In January, 1835, a young woman was adm her first child. She was evidently above the usually admitted into that establishment. She shun observation; and there were no symptoms that required interference. It proceeded to its of any interruption, and terminated within ten ho mencement. The pains were feeble, but they strong for the purpose: the patient herself ap-She was delivered of a girl; and in about half an enta was expelled; but the pulse instantly sank, syncope and every means that could be used failed to prevent them, although the discharge from the uterus was not nor was there the least evidence of hæmorrhage, either or externally.

be discovered to explain an event so unlooked-for; her however, may do so. She had been one of a respectable delicately reared, and educated in the strictest moral prinshe had been seduced, betrayed, and deserted; and, to her miseries, had to endure her hour of trial in the m-ward of the Dublin Lying-in Hospital. We shall only a another instance of this kind, which will, perhaps, more thy illustrate the effect of extreme nervous shock.

another instance of this kind, which will, perhaps, more e beginning of the year 1834, a poor woman had walked tance to the Dublin Lying-in Hospital, and, when near it. ddenly seized with the pains of labour. She was delivered street, and was with much difficulty brought into the house the placenta separated. It came away, however, without lty; and the trifling hæmorrhage that followed was easily d. Her alarm was very great, but after some time it subshe slept, and nothing further occurred out of the usual antil the following day. On that morning a patient was the into the same ward to be delivered, who was extremely grous: she occupied the next bed to this woman, who lay so by that she seemed to pay little attention to the disturbance. course of the day, however, she complained of being overby her cries. She felt faint, as if she were sinking; she slight pains in the epigastrium, some sickness of stomach, rather rapid, compressible, and soft. The woman who d this was fortunately delivered, and thus all further annoywas removed; but this patient did not recover from the t that it seemed to produce on her. Stimulants were given r; the extremities and surface were kept warm; and the most act quietness observed in the ward, but all to no purpose. In evening she was seized with syncope, so alarming as to excite

greatest apprehension for her safety: the extremities became

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cold, her motions passed involuntarily, and she died in about hours. The uterus was perfectly contracted; there was n slightest appearance of hæmorrhage from the vagina, no symptom present to explain the cause of dissolution.

A very careful inspection was made after death. All the v of the abdomen were quite healthy; the uterus was firm, an tracted to its usual size. There were some old adhesions lungs; the heart was small, and contained very little blo the right side; the vessels were all sound; and the only alte in the brain was an increased quantity of serum in the ven and at the base. No other explanation therefore was let the probable one that she sank in consequence of ex nervous shock. Her own sudden delivery produced a simpression on her mind, in the first instance. This was excited and increased by the violence of the patient allud and hence the effect. It is probable that she would have vered from the first shock, had it not been renewed b accident.

These instances will illustrate the influence of the min the constitution at this critical period: they are fortunately but those cases where the same cause operates in retarding sometimes in suspending, the action of the uterus, are more quently met with. The sympathy (to use a popular term) exists between the brain and the uterus is matter of daily obs tion; the change of feelings and temper that frequently from pregnancy, the hallucinations that occur after delivery the slightest temporary aberration to long-continued man prove the influence of the uterus on the mind. So, on the hand, a disturbed mind suspends the action of the uterus in the same manner as it interferes with the healthy acti the digestive organs. As in the latter class of cases you the appetite gone, the digestion imperfect, the liver disord and the bowels constipated, so, in the former, parturition m greatly prolonged, and the patient may recover with diff from the effect of a labour that otherwise would have been pily concluded within the average period.

The patients differ altogether from the hysterical class.

short restless excitement about them; on the contrary, they submit to their suffering with a quiet resignation, which might be called fortitude, only that the feeble pulse and listless expression pronounce it the indifference of despair. The patient mets her trial without hope, with the settled conviction that she will not escape. The sufferings that attend the birth of her inpring are only lighter pangs added to the accumulation of turows that have already overwhelmed her; she therefore makes no complaint, no inquiry; but the pains are feeble, the filatation of the os uteri is consequently slow, and the labour protracted. The uterus is evidently unequal to the required effort.

You have no clue to unravel the intricacy of these symptoms, as you are, of course, never informed of their cause. Neverbless, the quick and feeble pulse may excite suspicions; the badency to chill and the coldness of the extremities will increase tem; and the constant although passive watchfulness of the patient will confirm your apprehensions.

The moment the nature of the case is perceived, no time can be lost. A treatment is required, the opposite to that generally ployed. Stimulants may be given moderately, carefully obtaining their effect; the temperature of the surface and extremite must be attended to, and the bowels (which are always contrated) relieved by warm and stimulating enemata. Ergot of the in moderate doses, to excite the specific action of the uterus, useful.

You may thus succeed in securing a favourable dilatation of the uterus, before the patient becomes exhausted; so that, in the most stage, the uterus may retain sufficient power to complete the delivery in a short time; but if this be not the case, artificial intense becomes necessary, in order to abbreviate its duration much as possible. When the child is partly born, you must interful, also, not to withdraw it too rapidly from the vagina interful, also, not to withdraw it too rapidly from the vagina interful, also, not to danger that attends the case is not need to the effect of tediousness in labour; you have still quard against the syncope that may follow the complete raction of the uterus. It should, therefore, be permitted

to expel the remainder of the child very gradually, while an equable pressure is maintained by a broad bandage over the abdomen.

RIGIDITY OF THE PASSAGES. This may exist either in the cervix uteri, in the vagina, or in the perineum. At present we shall confine our attention to rigidity in the cervix uteri.

Rigid Cervix Uteri. We shall first speak of those cases where the rigidity has been induced by some accidental cause, and secondly, consider idiopathic rigidity.

Accidental Rigidity from Escape of Liquor Amnii. If the or uteri be much exposed to irritation, it is rendered rigid; the lips become swollen, hot, and tender: when these signs present themselves, the cervix is less disposed to yield to the action of the uterus, and becomes rigid. One of the most frequent causes of this kind of rigidity is gradual escape of the liquor amnii, by which the head of the child descends upon and irritates the cervix. If this irritation be long continued, you have to contend, not only against the effect of inflammation, but also against a spasmodic contraction of the fibres of the body of the uterus round the child. When this happens, an additional resistance is offered to the action of the fundus. In the treatment, therefore, promptitude is necessary. If the patient be strong, plethoric, and disposed to make violent straining efforts, a free depletion from the arm will be of much use; if diminishes the tendency to inflammation, and produces a feeling of exhaustion in the patient, which induces her to bear her pains more patiently. In order to ensure such an effect, depletion may be followed by tartarised antimony, in small doses, so as to excite nausea. Women who may have been previously very violent and intolerant of their pains, are soon subdued when the sense of exhaustion that attends sickness is excited. If, on the contrary, your patient be of an opposite temperament, this treatment cannot be employed; local depletion is preferable; a dozen leeches may be easily applied to the cervix uteri; warm emollient enemata may be given, and, if the woman be much fatigued or if the pains become feeble and irregular, an anodyne i often very beneficial; some sleep is procured, the irritation of rix is diminished, the spasmodic contraction of the fibres ars, and the pains return with more regularity and

Compression of the Head against the Pelvis. Another hat renders the cervix uteri rigid, from a tendency to ation, is its accidental compression by the head against is. Sometimes the mouth of the uterus, partially dilated, n down with the head into the pelvic cavity, where it e tightly wedged between the head and the pelvis. re recorded in which the whole cervix uteri has been ely separated by a circular slough, and expelled with the In order to avoid this, it is necessary to use every means bat inflammation, and to prevent, as far as possible, the of extreme pressure. Local depletion, either by leeches scarification, may be employed with advantage; and, he pains cease, the head should be pressed back towards m, to relieve the constriction of the cervix uteri. This treatment, with warm emollient enemata, which act as ations, will generally succeed; but if the impaction be so s to render it impracticable, instrumental aid becomes ry. The consideration of this we must defer to another

a Constriction of the Anterior Lip. The cervix and i may suffer only a partial constriction, and thus become d, and retard delivery. The head of the child may rest pubic side of the pelvis in such a manner as to compress erior lip of the uterus, and prevent its dilatation. A band formed before the head; and, when long pressed upon, bewellen, tender, and rigid. The treatment of the cervix when state has become a kind of vexata quastio in obstetrice. Some practitioners of station and experience have that the anterior lip of the os uteri be pushed up by the above the head, in the interval of the pains, and there need until the returning contractions of the uterus drived below it; while others of equal reputation deem such to objectionable, and calculated rather to increase than to he the difficulty, by exciting more inflammation. We may



authority. We must assume, on the evidence of Burns, and Breen, that this kind of artificial di accomplished in some instances with safety and own experience, however, confirms that of Dr. opposed to this practice: the opportunities we have it to the test have taught us that success is by ne as it is described to be; that the anterior lip 1 back again and again, and yet return to the sa before; that it is difficult to get the head to pass finger; and that these attempts, when unsuccessfi the swelling and inflammation of the soft parts. met with instances in which, after a failure o anterior lip was retracted without any assistance, tractions of the uterus succeeded in at length alt tion of the head. It appears to us, therefore, 1 manipulation may be employed, and would be se fingers were placed against the head of the ch relieve the constriction of the anterior lip, and to more towards the pelvic cavity. We are still, he to object to the practice of artificial dilatation of t uterus. There are certain cases in which it may in which the cervix is thinly expanded in front c rior obliquity." The patient should lie on her back; he fundus of the uterus should be supported during the By this means, and by pressing the head well back, the may be at once drawn up.

m Hypertrophy of Anterior Lip. The anterior lip is imes hypertrophied, and projects so much before the that it seems to be the cause of difficulty. It is scarcely ary to say, that time would be very fruitlessly employed in empt to push back this hypertrophied portion of the os

pathic Rigidity. Toughness. That condition of the cervix to which we have applied the term toughness (borfrom Dr. Hamilton), is often met with. The os uteri a thick gristly ring, rather dry, and without tenderness. ids very slowly to the repeated efforts of the uterus, and the stage of dilatation is generally very much prolonged; o long as inflammation is not excited, no injury is caused time occupied; nay more, these cases often recover more than where the labour is short, although severe. The nent is altogether of a negative character; rather to watch tively the progress of the labour than officiously to attempt sten it. Every care should be taken to prevent inflammafrom taking place; and vaginal examinations should be made dom as possible. The patient should not be suffered to e herself by endeavouring to assist the pains, and by fruitforts to shorten her sufferings. The room should be kept ctly cool; and, as there is generally very great thirst, heatrinks should be strictly forbidden: warm emollient enemata be given with advantage; and if a stimulus be required to e the action of the uterus, the addition of common salt in a rate dose will generally answer the purpose. In such a case is the first stage may occupy thirty, forty, fifty hours without y; but if attempts be made to hurry it to a completion, by mechanical dilatation or by ergot of rye, they will only inflammation. The former is a direct, the latter an indiirritant; because, when the uterus is much excited to conby the specific action of the medicine, the membranes are

broken prematurely and the head is driven forcibly down upon the undilated os uteri.

The patient may become fatigued and dispirited by the continuance of this stage, and the pains feeble and inefficient. When such is the case, a full dose of opium is often very serviceable; and the nearer the time of natural rest at which it is given, the more likely it is to succeed. A woman who has been fatigued by constant pain during the day, will often sleep the greater part of the night after an anodyne, and awake quite refreshed by her sleep. The dilatation of the os uteri then proceeds more rapidly to a favourable conclusion. Time, in fact, is the only remedy for this condition of the passages.

Cartilaginous Os Uteri. The last kind of rigidity to which we shall have to allude is that in which the os uteri is like cartilage, and will not yield to the most powerful and constant action of the uterus; the membranes are usually broken and the waters discharged early in this stage, and therefore the uterine action is increased to its full extent. Inflammation is the almost certain consequence of the struggle that ensues; you have, therefore, complications of the worst description to contend against. The issue of a case of this kind is the spasmodic and irregular contraction of the uterus about the body of the child, and frequently its death, before the uterus is opened to any extent. It therefore becomes a case for delivery by perforation. But there are some instances in which the dilatation is brought to a successful termination by extreme care in the management of the case. As a preliminary treatment, the frequent use of the warm bath is found to be very beneficial. When labour begins, warm emollient enemata should be given from time to time, and the patient placed at once under the influence of tartarised antimony. General depletion may be employed if the patient be robust; if she be otherwise, local depletion is preferable, and it is indicated as soon as the least tenderness of the os uteri is observed.

If these means fail, it becomes a question whether we should wait for the death of the child, in order to remove it by the crotchet, or incise the unyielding cervix. The former practice involves a sacrifice of life, but generally secures the mother from

the injurious effects which may follow. The latter may be the means of preserving the child; but if the incision lead to a laceration of the uterus, the mother is at once placed in the most imminent danger of her life. The fear of such a consequence, it appears to us, has prevented any attempt from being made thus to cut through this Gordian knot of difficult labour in its first stage; but whether this, like other operations, is only surrounded by chimeras of the imagination, which some bold spirit will dissipate, remains yet to be proved. Incision has been performed without accident; the same may happen again, and we confess, in a case such as we have described to you, we should be more disposed to adopt the shorter course, in the hope of saving the child, than to wait until its death enabled us to remove it. This, however, is but an individual opinion, and needs support.\*

### LECTURE XVI.

LABORIOUS LABOUR.

The causes of delay in the second stage of labour we have now to consider. Difficulties in this stage are produced either by disproportion between the head and the pelvis, or by some mechanical impediment obstructing the head in a pelvis that otherwise would permit it to pass. In cases of disproportion, the cause may exist either in the head of the child or in the pelvis, or in both combined.

THE FCETAL HEAD AS A CAUSE OF DELAY. The head of the

<sup>\*</sup> Since these observations were first written (1845) several cases have been recorded in which the cervix has been incised, the child saved, and no mother lost. Vide Mr. Tweddle's case (Guy's Hospital Reports, vol. iv. p. 119); Mr. Butler's (Medical Gazette, vol. xx. p. 589); Dr. Buckminster's (American Quarterly Journal, Oct., 1847); Dr. Pagan's (Edinburgh Meathly Journal, Aug., 1854, p. 172).

child may be a cause of difficulty from its irregular position. I may be too large, or too much ossified, or it may be hydrocephalic.

Irregular Position. We have already sufficiently dwelt upon the positions of the head (p. 188); very few observations upon them as causes of delay in labour will now be necessary. Some of these positions, as face and face-to-pubes presentations, have been assumed as, rather than proved to be, causes of difficulty. We have shown that the majority of these cases terminate within the ordinary period. Nevertheless, there are some exceptions in which labour is prolonged, and in which danger may arise if a judicious treatment be not adopted.

When the head is arrested with the face towards the puber, you will have no difficulty in detecting the position by the rule we have laid down; neither, when the head ceases to advance, is it hard to correct the position. Sometimes the correction may be made with fingers; but it is preferable to introduce the vectis on the pubic side of the pelvis, to press the head back in the intervals of the pains, and to rotate it gradually towards the sacral side. When we say "gradually," we mean that you should rather trust to frequently repeated efforts to give the head its proper direction, than to make a violent attempt to change the position in the first instance. The adoption of such a course would only end in disappointment, and complicate your difficulties. It is obvious that in these cases the head should not be suffered to remain too long arrested; because it may be impossible then to alter it, and you will be compelled to extract the child with the forceps-an operation which, in such a case, would be one of no little difficulty, and dangerous to the soft parts of the mother, especially to the perinæum. Every effort should be made to rotate the head, if possible, with the forceps, before extracting it.

If the face-presentation be in a similar manner arrested, as few vaginal examinations as possible should be made, merely such as are sufficient to determine the arrest; when this is ascertained, the forceps must be used. But it is very improbable that you will meet with a case where such an operation is necessary.

That accidental displacement by which the antero-posterior surement of the head is fixed across the cavity of the pelvis been already alluded to (p. 195). This is the most easy to met of any of these deviations; but if the head be left too garrested, you may not be able to press up the forehead with ingers; the vectis may therefore be applied for the purpose altering the direction.

The last irregularity is when the forehead becomes the presenting of the last irregularity is when the forehead becomes the presenting of the these rare cases, it may be possible to correct the billion, if detected sufficiently early; but if the head is forced we low in the cavity of the pelvis it cannot be done, and the person of the pelvis it cannot be done, and the person of the pelvis it cannot be done, and the person of the pelvis it cannot be done, and the person of the pelvis it cannot be done, and the pelvis it cannot be done it c

The next cause of difficulty we have stated to be that in which The Head of the Child is too Large and too much Ossified. is will require a more attentive consideration, because it appears that this increased development of bone occurs most freutly in male children; and through the elaborate researches Professor Simpson of Edinburgh, we now have statistical proof t-1. "The dangers and difficulties of parturition are greater the mother in male than in female births;" and 2. "The gers and accidents from parturition and its results are greater the child in male than in female births." Professor Simpson lectly attributes these effects to the greater size of the head at in male infants; a fact already noticed by the late Dr. Joseph rie, of Dublin. We should be disposed to add, that not only is nize greater, but the ossification of the bones is more advanced, therefore they are less disposed to yield. The head of the thy male child is rounder, and the fontanelles are smaller: of the female is more oblong, and the fontanelles are more met. These characters, along with the increased size, conate to produce greater difficulty in its passage through the The head being too much ossified, is therefore a very ment, and too often a very embarrassing cause of delay in the and stage of labour. When a vaginal examination is made, posterior fontanelle is not distinctly felt; it seems to be only a al point to which the lambdoid and sagittal sutures converge; sigittal suture is indistinct, the head presenting a round

firm, equal surface. When the head is so formed, it will get rally pass safely through a pelvis of the average proportional although slowly and with difficulty. It is when the pelvis deviation the standard, and is diminished in its proportions, that the difficulties increase to a dangerous extent.

As far as we have had the opportunity of judging, this kind head is very often met with when the pelvis is in a similar co dition-too much ossified. We shall have again to bring before your notice the varieties of the pelvis which have been describe to you in the commencement of the course; and we shall beg yo to attend especially to that variety which possesses many of the characters of the male pelvis, and to take it in connection will the large, round, ossified head of the male child. This is essential importance when we have to compare it with other varieties in the head and in the pelvis, and to derive from the facts a conclusion as to rules of practice. At present, we sha only direct your attention to the propositions which have been quoted as established by Professor Simpson. The valuab report by Dr. Collins, of the practice of the Dublin Lying-Hospital, has been the basis of his calculations. We are happy have it in our power to confirm Prof. Simpson's statements ! the results of our own experience in the same hospital. those cases having been noted in which the duration of labor extended to or exceeded twenty-four hours, the following resul were obtained in reference to this question.

There were in the total number of patients delivered (5698 213 such cases, of which five were twin-births; 126 of the were boys, and only 92 girls, or in the proportion of three to tw Forty-six of the boys died, thirty-five of the girls, being more that one-third of the whole number. About eighty of these 213 cas occurred when that hospital was under the superintendence Dr. Collins, and are therefore included in 16,654 cases reported by him; the remainder were observed during the two years subsequent to that report. These facts establish that the major ity of cases where labour is difficult are those with male children and, as the greater size of the head is proved to be the cause, the difficulty must be in the second stage, and they belong, therefor to the class of laborious labours which we are now considering

Hydrocephalus. The next cause is of a very opposite chaneter. The hydrocephalic head, it is true, is enormously increased in its size, but its ossification is retarded; and it might rather be compared to a bag of fluid than to the solid tumour which the head generally presents. Hence some of these cases are attended with no difficulty; and instances have occurred to me, which the head, though morbidly enlarged, passed easily through the pelvis; but, on the other hand, some of the very wast cases in obstetric practice have depended upon this cause. As a proof, we place before you the very opposite results of the practice of Dr. Collins and Dr. Lee on this point. Dr. Collins reports six cases in which the child was still-born, from hydrocephalus. In three of these cases labour lasted only one hour; in a fourth only two hours; the fifth was twenty-six hours in labour, act stated to be severe; the sixth was brought into the hospital, wher being thirty-two hours in severe labour. In none of these cases did the mother suffer. In contrast to this, Dr. Lee gives for cases:- one twenty hours in labour; one, sixty hours; one, eventy-two hours; the fourth stated as being "very long;" the thi, "too long" in labour. In three of these cases, the mother fied; two of them in consequence of the uterus being ruptured. These last two cases are detailed at length by Dr. Lee in his Lectures.\* Dr. Thomas Keith quotes 74 cases of hydroceplalus recorded, in sixteen of which the uterus was ruptured. (Simpson's Obstetric Works, vol. i., p. 654.)

If it were necessary to bring forward additional proofs to continue you of the importance of educating the sense of touch so a todistinguish the different positions of the head, such instances these would afford abundant evidence. It is obvious that, if the cause of delay were known to be hydrocephalus, no patient should be suffered to remain "very long in labour." The disease is fatal to the child; and if the head be arrested, there is no other operation than to perforate the head with a trochar and

<sup>\*</sup> It is right to state, that these cases, recorded by Dr. Lee in his Clid Midwifery (pp. 54—60), were cases in which Dr. Lee's assistance was
required, not those attended by him from the commencement of labour.

discharge the fluid. The trochar should always be first instance; because, when the fluid is thus drawn may descend through the pelvis and the child be bo have met with one such instance; and if it be poss this disease by tapping and pressure in a child a ye there is no reason why such treatment should not su The practice is self-evident when the cause of diffic stood. But when a patient is allowed to remain u cumstances too long in labour, it can only arise from education in the sense of touch, in consequence of condition of the head is unnoticed. Those who are that the head presents, without caring how it is si liable to those mistakes; but when, by a constaattention, a facility in recognising its different acquired, the remarkable change which hydrocepl will at once be detected. The increased size of fontanelles, the mobility and separation of the sagit great overlapping of the parietal bones during a pa have entered the pelvic cavity, and the general loo bones, will sufficiently point out the nature of the mine the practice.

Such are the principal causes of difficulty deper head of the child, in the second stage of labour. portant of these is certainly that in which the he and too much ossified—the head of the male child turn to the

DIFFICULTIES PRESENTED BY THE PELVIS. To 1 sion, we shall assume that the head presents in the

It will not be necessary again to enter upon a detion of the varieties in the irregularly formed pel sufficient to recapitulate briefly these leading point that are of practical importance; and with this consider that form of pelvis which has been describling the male pelvis, to compare it with the pelvdisease, and observe the points of contrast betwee pelvis resembling the male is more osseous that pelvis; the diseased pelvis less so. The former w maculine pelvis, and proceed to consider its especial charac-





Musculine Pelvis. Its weight is greater than that of the orditury pelvis, in consequence of the increased deposition of bone; but, what is more important, this deposit occurs in most unfavorable situations. The symphysis pubis is very narrow, and a buy ridge is sometimes formed behind it. The spine of the achium is longer, and drawn inwards. The ischiatic tuberosities to larger and rougher, from the same cause. There is much less billity in the sacro-coccygeal articulation; and the sacro-iliac spechondrosis is perfectly unyielding.

Its shape is unfavourable to the passage of the head. The tim is rather lessened in its transverse and oblique measurements; but the difficulty which this pelvis presents is not smerally at the brim, it is rather at the pelvic cavity that an in the standard pelvis, and becomes narrower towards the outlet. The head often passes down almost to the outlet, and then becomes impacted, because the pubic arch is too narrow to

Fig. 60. Masculine pelvis.

allow the occiput to escape from the cavity; it is driven down still further, and becomes fixed between, the tubera of the ischia. Its advance is also oppose resistance of the coccyx, and perhaps by the spines of the head may be arrested before it reaches the outlet, quence of the difficulty of its rotation towards the conjugit of the pelvis.

If, in addition to these impediments depending upon of the pelvis and its increased ossification, we should to contend with obstacles arising from the large and os of the male child, a very embarrassing combination of would present itself, requiring the most skilful treatment to a successful issue. They are, however, of a perfectly the opposite to those more generally desc difficulties of the deformed or diseased pelvis—the cof pelvic embarassment which is pointed out by jority of obstetric writers. Let us, then, contrast the other.

Diseased Pelvis. The softened pelvis has a less depethan the standard pelvis. The symphysis pubis is often perfectly smooth; the ischiatic tuberosities small. The tions are less resisting; and we might add, on the a some recorded cases, that the pelvis itself is capable.

Fig. 61.\*



degree of expans shape of the dises is never uniform which is gener buted to rickets, toval, and, in the deformity, is of glass shape; the shallow; the owide; the coccycurved (fig. 61).

<sup>•</sup> Fig. 61. Ovate pelvis: case of Elizabeth Sherwood

al difficulty in such a pelvis is at the brim, the r measurement being too narrow; but if this no other impediment presents itself but the although abruptly curved, is generally sufficte oppose but slight resistance to the head of the deformity which is ascribed to mollities ossium, pelvis, its irregularities impede the passage of a in the brim, cavity, and outlet (fig. 62.) If

Fig. 62.\*



the head pass through the cordiform brim, it is still opposed in the cavity by the planes of the ischium, which are pressed inwards: the pubic arch is also too narrow to allow the head to escape. The coccyx is abruptly curved in the same manner as in the rickety pelvis, from which it differs

proximation of the ischiatic tubera. The extreme mity would render the passage of the child imposy, therefore, to cases of slighter deviation into this at our present remarks must apply: we would call ose instances alone where the head of the child igh the pelvis slowly, or may be drawn through it

veen the Masculine and Diseased Pelves. Assuming y in both the masculine and the diseased pelves ame apparent contraction, the difference in the ication must cause a corresponding difference in opposition to the passage of the head. The 'the softened pelvis, although not actually move-is asserted by some), are yet capable of yielding, ttent; the bones themselves may admit of slight if we might admit the probability that the head of

<sup>2.</sup> Cordiform pelvis: case of Elizabeth Thomson.

the child is also less ossified, we shall perceive a strong contrast to the difficulties which the masculine pelvis presents under apparently similar circumstances.

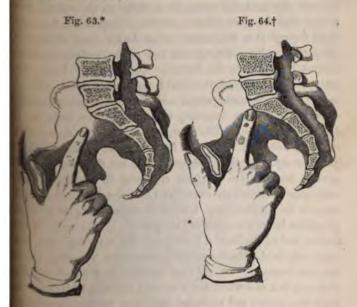
The contrast is not confined to the pelvis alone; but there is a similar difference in the constitutional strength and temperament of the parturient woman.

We have already briefly alluded to the characteristics of those strong, muscular, masculine women with whom the pelvis is unusually ossified, who have often great rigidity of the passages and with whom we sometimes find that almost undilatable rigidity of the os uteri. Let us contrast them with those feeld habits, whose unhealthy constitutions are indicated by the evidences of disease in the pelvis. They are generally of leucophlegmatic temperament; the subjects, perhaps, of the cameleon disease, hysteria, therefore nervous and excitable; fair complexion, soft skin, bones fine, but swollen at the joints; the flesh often flabby, and the tissues relaxed. In such habits the os uteri is seldom rigid; the vagina is smooth, and very yielding and, if leucorrhoa have existed, may be even flaccid; the perinæum is also quite dilatable., Inflammation is not so readily excited in the passages as in the former case; and the whole difficulty of the case in this second stage is, as it were, centred in the pelvic deformity.

It should be also noticed, as a constitutional difference, that in these feeble habits the uterus does not possess the same energy; it is sooner fatigued, and exhaustion would be more readily induced if its action were greatly prolonged, than in patients with masculine pelves. Thus two cases which present precisely the same apparent amount of resistance to the passage of the head may be perfectly opposed in every other respect; and consequently the same treatment, if applied to both, might be mischievous to either. It is essential to point this out, because rules of practice are too often laid down by authors, as being applicable indifferently to all cases which present the same amount of disproportion; and hence a great deal of useless controversy has sprung up as to those rules, in consequence of the opposite experience of the disputants. For example, if the

peiris. In extreme cases, three, two, sometimes even one finger will hardly pass between the sacrum and the os pubis. In other two, where this cannot be done in consequence of the outlet bing also distorted, you have, in this circumstance, additional mission of the character of the pelvis.

When, as in the ovate pelvis, the outlet is wide, two fingers may be introduced, and one applied to the promontory of the arun, the other to the symphysis pubis, a finger of the opposite may be placed between them, and then withdrawn. The stance between the introduced fingers, thus prevented from may be measured, which will give the conjugate axis the tolerable accuracy.



The measurement being ascertained, the next question is the def delivery. If the conjugate axis be only three inches,

<sup>\*</sup> Fig. 63. Measurement of pelvis by fingers. Size normal.

<sup>+</sup> Fig. 64. Measurement of pelvis by fingers. Sacrum projecting forwards.

discharge the fluid. The trochar should always be used in the first instance; because, when the fluid is thus drawn off, the head may descend through the pelvis and the child be born living. We have met with one such instance; and if it be possible to check this disease by tapping and pressure in a child a year or two old, there is no reason why such treatment should not succeed at birth. The practice is self-evident when the cause of difficulty is understood. But when a patient is allowed to remain under such circumstances too long in labour, it can only arise from an imperfect education in the sense of touch, in consequence of which the true condition of the head is unnoticed. Those who are quite satisfied that the head presents, without caring how it is situated, will be liable to those mistakes; but when, by a constant and careful attention, a facility in recognising its different positions is acquired, the remarkable change which hydrocephalus produces will at once be detected. The increased size of the posterior fontanelles, the mobility and separation of the sagittal suture, the great overlapping of the parietal bones during a pain, if the head have entered the pelvic cavity, and the general looseness of thes bones, will sufficiently point out the nature of the case and determine the practice.

Such are the principal causes of difficulty depending upon the head of the child, in the second stage of labour. The most important of these is certainly that in which the head is too large and too much ossified—the head of the male child. Let us now turn to the

DIFFICULTIES PRESENTED BY THE PELVIS. To prevent confusion, we shall assume that the head presents in the first position.

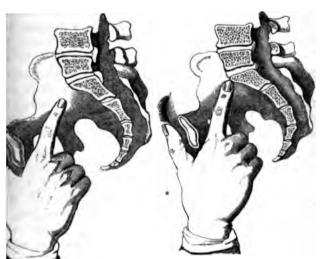
It will not be necessary again to enter upon a detailed description of the varieties in the irregularly formed pelvis; it will be sufficient to recapitulate briefly these leading points of difference that are of practical importance; and with this view we shall consider that form of pelvis which has been described as resembling the male pelvis, to compare it with the pelvis deformed by disease, and observe the points of contrast between them. The pelvis resembling the male is more osseous than the standard pelvis; the diseased pelvis less so. The former we shall call the

In extreme cases, three, two, sometimes even one finger ardly pass between the sacrum and the os pubis. In other where this cannot be done in consequence of the outlet also distorted, you have, in this circumstance, additional see of the character of the pelvis.

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Fig. 64.†

Fig. 63.\*



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<sup>•</sup> Fig. 63. Measurement of pelvis by fingers. Size normal.

<sup>†</sup> Fig. 64. Measurement of pelvis by fingers. Sacrum projecting forwards.

allow the occiput to escape from the cavity; it is therefore driven down still further, and becomes fixed between, or above, the tubera of the ischia. Its advance is also opposed by the resistance of the coccyx, and perhaps by the spines of the ischia. The head may be arrested before it reaches the outlet, in consequence of the difficulty of its rotation towards the conjugate axis of the pelvis.

If, in addition to these impediments depending upon the shape of the pelvis and its increased ossification, we should be obliged to contend with obstacles arising from the large and ossified head of the male child, a very embarrassing combination of difficulties would present itself, requiring the most skilful treatment to bring to a successful issue. They are, however, of a character perfectly the opposite to those more generally described—the difficulties of the deformed or diseased pelvis—the only source of pelvic embarassment which is pointed out by the majority of obstetric writers. Let us, then, contrast the one with the other.

Diseased Pelvis. The softened pelvis has a less deposit of bone than the standard pelvis. The symphysis pubis is often wide and perfectly smooth; the ischiatic tuberosities small. The articulations are less resisting; and we might add, on the authority of some recorded cases, that the pelvis itself is capable of some



degree of expansion. The shape of the diseased pelvis is never uniform. In that which is generally attributed to rickets, the brim is oval, and, in the extreme deformity, is of an hourglass shape; the cavity is shallow; the outlet very wide; the coccyx abruptly curved (fig. 61).\*

<sup>\*</sup> Fig. 61. Ovate pelvis: case of Elizabeth Sherwood.

be made to save the patient; and therefore a protracted maless labour should be avoided. When the diminished is accurately ascertained, and sufficient time given to prove head cannot pass, craniotomy must be performed. When rejugate axis diminishes to an inch and a-half, a limit is even on this operation, which we shall consider when ag of the Cæsarian section.

Head may become fixed within the Brim. This may occur
may of the irregularities of the pelvis that have been
med to you. The degree of disproportion may be just
must to allow the head to enter the brim, and no more; but
the majority of these deviations, the cause retarding its
me exists in the pelvic cavity, such instances may be most
miently included under the next division. At present,
muld direct attention to one, and only one, variety
deformed pelvis, where the head is often fixed in the

the ovate pelvis (that which is produced by rickets), the gate measurement of the brim is diminished, while the



Fig. 65.

<sup>•</sup> Fig. 65. Head fixed in the brim of the pelvis .- (Smellie.)

transverse and oblique are increased; the cavity is shallow, outlet wide. When the head, therefore, has entered the band is there arrested, the conjugate measurement is the cause of obstruction; but if this difficulty can be overcome, thead will rapidly advance. Such seems to be precisely the cawhere the long forceps may be applied with the most success. The shape of the brim is very favourable to its application and if the head can be drawn through the brim safely, further difficulty remains. When the head is thus fixed in the brim, its long axis corresponds exactly to the transverse measurement. The biparietal space is compressed between the sacrum and the os pubis, hence it would be impossible to feel the ear of the child; the sagittal suture is overlapped; but there is always sufficient space between the head and the sides of the pelvis to introduce the blades of the long forceps.

The Head may pass through the Brim, and remain obstructed in the Cavity. This division embraces the largest number of case you have to consider, and the most important. It is to this the the observations apply which we have previously made, is reference to the large and ossified head of the male child, the masculine pelvis, the cordiform variety of the deformed pelvis and the constitutional differences to be noticed in these cases. It is here that the rules of practice are the most contradictory and however difficult it may be, it is in such cases of the utmost importance that they should be, as far as possible, determined We shall therefore first lay before you the characters of the obstruction, both in its slighter form, when it is called "arrest, and in its increased degree, when it is named "impaction," and then endeavour to deduce, from the facts within our reach, a sal conclusion as to the rule of practice.

The term Arrest is applied to those cases where, althoug the head ceases to advance, either the obstruction does not depen upon disproportion in the pelvis, or the disproportion, when exists, is not so great as to render the delivery of a living chil impossible. For instance, when the uterine pains are feeble an inefficient, if the position of the head be unfavourable, or if th arm descend with the head, its progress may be arrested without the irregularity in the pelvis. The term Impaction is employed when the head not only ceases to advance, but when there is very evidence that its further progress is beyond the power of the uterus. The use of this term is therefore confined to those cases in which there is great deformity of the pelvis, or to those in which a very large and ossified head is wedged in the deep arrow cavity of the masculine pelvis.

When the head is arrested in the pelvic cavity, it may be radily distinguished from the impacted head. In cases of arrest, I the head be slightly pushed back, the finger can be passed with facility between the head and the pelvis; the ear may be touched; the parietal bones do not overlap each other strongly; the scalp is only puckered; or, if a tumour be formed on the presenting part, it is diffused, increases slowly, and seldom attains any magnitude. When the head is impacted, it cannot be casily displaced; it is impossible, without force, to pass the finger between it and the symphysis pubis; the ear cannot be Alt; and the urethra is compressed. The parietal bones are strongly overlapped; and cause the sensation to the finger that is expressed by the homely simile of "the sow's back"; a tumour grows very rapidly, and to a great size, often completely obscuring the character of the presentation; the vagina is also swollen and congested. If, however, the death of the child take place, the head becomes less in size, softer, crepitant, and ædematous, while the serrated edge of the suture may be felt still more distinctly.

## LECTURE XVII.

LABORIOUS LABOUR (continued).

Is the preceding lecture we pointed out the manner in which the head may be impeded in the pelvic cavity, and explained the terms used to designate the different degrees of disproportion. We shall now bring before you the effects that result therefrom,

the symptoms that indicate danger in labours of this cla the general treatment required to secure the patient from i We shall then endeavour to determine, as far as possil circumstances that justify artificial assistance, and the na the aid that is called for. In speaking of the second of natural labour, we directed attention to the change in the action of the uterus when the waters we charged and the os uteri fully dilated. The action then I much more powerful, and the effort to force the child for assisted by every muscular aid that can be called into ac the patient. Hence the danger that may arise if the adv the child be opposed by any unusual resistance from the If the head be arrested, but still more if it become impac most serious consequences may follow, if not prevented by cious treatment. It is therefore necessary, in all such watch very closely any alteration in the symptoms that pany the struggle, in order to foresee the approach of dan to act with that promptitude and decision which the stances require.

The unfavourable results that follow these labours, and the majority of all difficult labours, depend generally u of two causes—inflammation or exhaustion.

Inflammation of the passages may arise, and, if it properties any extent, may terminate either in slough of some paragina (more especially the vesico-vaginal septum, becausexposed to pressure); or in the slough of the whole vagin inflammation assume an erysipelatous character; or perslough and laceration of the portion of the vagina connected neck of the uterus. Each of these consequences, although in degree, is equally to be avoided. It is therefore improbserve the earliest symptoms of inflammation.

Exhaustion of the Uterus. When the uterus becomes less, artificial assistance is absolutely required to delichild. The danger, however, does not consist in this n but rather in the cause that led to it. Atony of the uter easily produced; but when it occurs, the shock to the c tion is very great. Sudden death has been the consequence.

the patient is always placed in imminent danger, because the symptoms of constitutional disturbance which present themeter. Besides this, the uterus having lost to a certain extent power of contraction, hæmorrhage may be the result; and this mass the exhaustion of the patient, and, consequently, the term of the case.

Hence, one of the most serious effects that can follow proand labour is, that the patient becomes, in the true meaning term, exhausted. It is one that should be guarded against very precaution, and which justifies the most prompt interthe moment any indication is given of such an unlookedalteration in the constitution of the patient. But do not hand exhaustion with mere fatigue. Fatigue is the ordinary st of long-continued exertion, and, therefore, of long and re labour; exhaustion, a very rare result of it; nevertheless, term exhaustion is applied indifferently to express both ts. The patient will tell you that "she is quite exhausted." friends will exclaim, "that she will sink from exhaustion if relieved." This language is well understood and appreciated he intelligent practitioner in cases where there is no exhauswhatever; but we fear we must add, that it is an appeal very fily listened to by some who are not quite so prudent, and feel quite as much inconvenience from fatigue as the ent. You must not be betrayed into impatience from such a but rather steadily observe the character of the labour, be prepared to recognise the earliest symptom of exhaustion moment it presents itself. Thus you will be able to interfere promptitude when your assistance is required, and, on the m hand, will not be hurried by these urgent solicitations into unnecessary, and perhaps an injudicious, attempt to terminate labour.

When the head of the child moves very slowly, or ceases to race through the pelvic cavity, the second stage of labour is a greatly lengthened. In such instances, the uterus continues at for a certain time with the same power as before; but if effect be produced, its action is suspended in the same manner in the first stage, only for a shorter time. When the pains

are renewed, they are not so strong as before; the uterus as it were, conscious of the difficulty; the pains are shalthough very often severe. At this time the woman is distouse every effort to force the child forward, and, impair the delay, will strain with all her strength: failing in here she becomes alarmed and dispirited, and her mental anxiet further interrupts the action of the uterus. She should the be dissuaded from fruitless attempts of this kind, because n is so well calculated to excite inflammation, if not to p exhaustion. It is more necessary to point out this, because n is too frequently recommended to adopt this very tice. She is often desired "to bear down with her pains "to assist herself" at a time when she can give herself no ance whatever.

After this comparatively feeble action of the uterus he tinued for some time, the pains return in their former st especially if the patient have had even momentary sleep. difficulty be still insuperable, they may either again or continuing, may produce inflammation of the passages.

Symptoms and Treatment of Inflammation. When inflan is in the least degree indicated, the pains are very sh tremely severe, and in their intervals the patient still co of pain and a feeling of soreness. If the uterus be er through the abdomen, you will observe a very perceptible rence in the sensation it communicates. It feels almost and contracted in the interval as during the pain; the cannot bear to have the abdomen touched. Besides thi tion in the character of the pains, we have other sympton local and general, to guide us. Febrile irritation, which ! previously absent, shows itself; the pulse becomes quick, ! and not easily compressed; the tongue is dry, and the pa great thirst; the countenance is anxious, and the feat slightly collapsed; there may be a distinct rigor, b usually there is but a slight chill. Locally, the vagina hot, tender, and dry from cessation of the mucous secre if the inflammation increase, a serous discharge may b tuted. When inflammation thus commencing is neglec

textends to the uterus, there are further local changes depending upon the effect produced on the contents of this organ. The membranes undergo decomposition; and then a thick, yellow, oily, and very offensive discharge flows from the vagina. This is increased if, the death of the child having taken place, its tissues undergo a similar change. You should bear in mind, however, that there are cases where the death of the child may have taken place either in the beginning of labour, or before it is commenced. In such instances, putrescency may take place mpidly, and appearances similar to those just mentioned might present themselves without any inflammation having existed; you must not, therefore, confound the dark and fætid discharges from the vagina, that depend upon such a cause, with those that occur in connexion with inflammation of the vagina and uterus.

When the head remains in the cavity of the pelvis, and the less tendency to inflammation is manifested, the most prompt and decided measures are necessary. In strong and plethoric tabits, free general depletion, followed by nauseating doses of tartar emetic, emollient enemata, and local fomentations, will check the advance of inflammatory symptoms, and give time to determine the important question as to the delivery of the child. In those feeble constitutions where you have reason to dread lest exhaustion should ultimately take place, you cannot employ general depletion, nor any means that would reduce the strength of the patient to any extent. It is preferable to deplete leally, to use fomentations, enemata, and, after the bowels are tracuated, to give a moderate dose of liquor opii sedativus, comined with some diaphoretic. Inflammation does not so readily thise in these cases, and when it occurs it is more easily arrested; but exhaustion would be much more likely to follow prolonged abour than in those more robust constitutions to which we have alluded. Both cases demand an equal attention; but it must be directed to a different object. We shall therefore briefly detail these premonitory symptoms that indicate the approach of exbaustion.

Symptoms and Treatment of Exhaustion. When the uterus is becoming weak, and its strength is, in the strictest sense of the

term, almost exhausted, the pains become short and ineffic the intervals between them longer, and sometimes they are suspended; but, the nervous system being excited, the pa derives no advantage from such suspension. She does not a but continues watchful, anxious, and restless; the pulse i creased in frequency, is very easily compressed, and its puls are disturbed and rendered irregular by the most trifling a The countenance of the patient is peculiar. To say that collapsed would not convey its exact expression. and anxiety are portrayed on features that equally in languor and listlessness. An observable change takes place to explain how is not easy. If these monitors be negl further symptoms of constitutional disturbance will soon p themselves. Constant watching, increased restlessness, h respiration, irregular chills, and slight delirium, all rapidl ceed each other, and hasten to the most unfavourable cond When there is the least reason to apprehend exhaustion, pr tude in delivery is imperative; but before interference i called for, much may be done to prevent its necessity. very important in these cases, because it is an evidence ti over-excited nervous system is tranquillised; therefore, wh pains are becoming weak, or return only at long inter moderate dose of opium is often of great service: if the sleep, even for a short time, the uterine action is renewe much more power. After a temporary rest has been the duced, if the uterus still continue to act feebly, ergot of I be given in an equally cautious manner; carefully atten its influence on the pulse, and especially on the circula the fœtus. If in either case, after giving this medicine, of the pulsations be diminished, you must not persever employment, otherwise the death of the child may be the

<sup>•</sup> Ergot of rye should be given with great caution. Its effect closely observed by Dr. Beatty, and he is led to the following stons:—.

That the administration of ergot to a woman in labour is attedanger to the child, whenever a time sufficient for the absorption a

It is also necessary to be careful to avoid the use of secale cornstant, if the delay in this stage arise from great disproportion between the head and the pelvis. It must be obvious to you, that in a case like this it would be very dangerous to use a means

mission of its noxious properties elapses before the child is born. The space of effect produced differs with the time that elapses between the mission of the dose and the birth of the child. Hence, the ergot should have be given in any case where there is a likelihood of the labour lasting for than two hours after its administration; except when it may be emplored to save the mother's life; and secondly, if delivery is delayed to two hours, we should resort to artificial assistance to save the life of the child."

—Bublin Journal.

Dr. Hardy has since made its effects the subject of his observation, and

- t. The period after administration that its action commences.
- 2. Its effects on the maternal pulse (when any), and how soon evident.
- 1 Its effects upon the fostal heart (when any), and how soon produced.
- t. The state of the uterus and lochial discharge during convalescence,
- Lit appears that, in some cases, ergot of rye acts on the uterus so soon a even minutes after its exhibition, whilst in others a much longer period of time is required; from about ten to fifteen minutes may be stated as the areage. In those cases where the children have been expelled alive, I (Dr. Hardy) have always observed the action of the uterus to commence while twenty-five minutes. On the other hand, when a longer period than the clapses before the uterus takes on action, the use of instruments has been necessary to perfect the delivery, or the children have been dead-lare.
- Let in nineteen cases there was a marked diminution in the frequency of the mother's pulse, following the administration of ergot. This effect provally began to take place from about fifteen minutes to half-an-hour. In all these instances, when the depression of the pulse occurred, the fortal heart underwent a similar change. In several cases where the circulation of the patient underwent this depression from the action of the ergot, the effect continued several days.
- 3. In the majority of cases, a diminution in the feetal heart's pulsations followed the exhibition of ergot. The period at which this effect begins be produced, varies from fifteen minutes to half an hour. The most effect is a diminution in the frequency of the pulsations; this is exceeded after some time by an irregularity in its beats, which irregularity entinues, more or less, until the sounds intermit, and at length after a variable period become quite inaudible. In those cases where the number

#### LABORIOUS LABOUR.

of exciting the action of the uterus, over which you can have control. A preparation which exerts a specific industre of meris, which often causes the most violent action, and that t returning at intervals, as ordinary pains do, but which excite

to employ when there is much resistance opposed to this ad-The remedy is useful, however, when cautiously administration those cases where the delay chiefly arises from want of power the uterus, which may be exhausted if not thus artificially size

continuous effort of the uterus to expel the child, is not the si

Lated to action. Having and

of pulsat one have been steadily reduced below 110, and at the same with intermissions, the child will rarely if ever be saved, although its delim should be effected with the greatest possible speed. 4. The volume of the uterus is often found much greater than after of nary labours. In a idition to this enlarged state of the uterus, it has see

times a firmly contracted feel, which generally continues for several de-In a few instances the localial was rather pale and scanty, although notice unfavourable occurred during convalescence to account for this circu stance. With some few exceptions, the women had generally g recoveries. The children that were born alive, all, with one exception.

well. In this case, delivery was effected by the forceps, as the femilies had fallen so low as 100 from the exhibition of the ergot. It died in time hours after delivery.

General Results of Dr. Hardy's Tables.

Cases in which the uterus expelled the child alive . Cases in which the children were born alive by the application of the forceps or vectis (after ergot was given)

Cases where the uterus expelled the child dead-born (after ergot) . Cases in which the forceps or vectis were applied (after ergot), but the children dead born . The children dead (from ergot), delivery effected by the crotchet

### Dublin Journal, vol. xxvii, p. 224.

From the above summary of cases given by Dr. Hardy, it appears the a Sween-right cases where eight of the had been given, thirty-four children were still horn,-nearly three-fourths!

this brief outline of the general treatment necessary in these protracted cases, we shall now enter upon the more difficult question of their management to secure the delivery of the child, ssuming that instrumental aid is not rendered imperative by the presence of inflammation or exhaustion. It is hardly necessary to state that there is every variety in the degree of disproportion between the head and the pelvis. In some instances, it is so might that the child may be safely delivered without any mistance; it will only occupy a longer time in passing through the pelvis. In others, the amount of difficulty may be so much mereased as to render it doubtful whether the head can pass without assistance; and it is in these cases that the rules which are given for your guidance are the most contradictory. Again: there may be a still greater disproportion, in which you can have no doubt about the improbability that the head can be expelled by the natural efforts of the uterus, although there is very great bookt, and no little dispute, as to the means by which the head must be extracted. Lastly, in occasional instances the narrowso of the pelvis is such, or the magnitude of its distortion is so great, that the safe delivery of the child is hopeless; the head must be lessened; the child must be destroyed before it can be brought into the world. In extreme cases, even this cannot le done; but recourse must be had to the difficult and dangerous operation of removing the child from the uterus by laying it open, in order to save the mother from the dreadful alternative of dying undelivered.

In those cases of slight deviation from the standard pelvis, where there is every evidence of space sufficient for the head ultimately to pass, if nature be allowed time for the purpose, you would not, of course, interfere with her; although we believe interferes might be quoted where very adroit operators have, even in much cases, relieved the tedium of a long attendance by a ready application of the forceps. It is sufficient to say that the united action of the profession, given in every standard work of adwifery, is opposed to such a practice; and if any accident should arise from this mischievous meddling, the operator is fully responsible for all the consequences that follow from it. But in

those more doubtful cases, in which there seems hardly suffice space for the head to pass safely through the pelvis, the profission so clear, nor is the evidence of the profession so masing on the subject. When, in such instances, the head is attained arrested, and so remains for some hours in the same position sufficient length of time to satisfy you that the uterus of advance it; if the ear can be felt, or the finger be passed of between the head and the pubes, you may use the forest deliver the child, and we think the weight of authority will say your practice. But when the head is not so arrested, but, at same time, advances so extremely slowly that it seems to confounding you.

In the last generation, we find Burns, Hamilton, and Campis advocating prompt interference when the second stage is mail such slow progress; while Wm. Hunter, Osborne, and Denne were opposed to the use of instruments so long as the new efforts seemed adequate to their object. At the present time, I Collins has laid down the rule "that so long as the head advances so slowly, the patient's pulse continues good, the abded free from pain or pressure, and no obstruction to the removal urine, interference should not be attempted unless the child dead."

This principle has been severely attacked; and in the controversy a new and very important question has been raised. Professor Simpson, which if true, would decide in favour interference in all such cases. He has shewn from statistics the mortality is increased in direct proportion to the length of a labour; that a labour of four hours' duration is more fatal than set two hours; one of eight hours than one of four; and see the inference that protracted labours are dangerous to raise of the time they occupy. We have given this important proposition the reflection it so justly merits; but confess to much ecincide in the conclusions drawn from it. It seems to have too much; that not only are the longest labours the management of the shortest are the safest: neither of the propositions has the support of our experience. The dangers of

neted labour depend upon many causes; and, if the constitube good, time alone is the least injurious. Rapid labours steaded with risks from which those of moderate duration We do not think, therefore, that the shortest labours he safest, or the longest in time the most dangerous. This ion must be determined by individual experience; because are many causes of error very difficult to remove from a cial calculation, which would lead to a false conclusion. which labour occupies involves the question-What the delay? If a difficulty exist leading to a fatal result, eath is attributed to the time occupied, not to the obvious so that it may be perfectly true that labours are dangerous oportion to their protraction, and yet not true that the consists in the time occupied. Dr. Simpson has taken allins's tables as the basis of his calculation. These were d from the Dublin Lying-in Hospital exclusively. In that al, women were frequently brought in when labour had considerable advance. Those delivered in one, two, or four may have been a much longer time in labour before they d the Hospital. The actual duration of labours under six ht hours in that Institution was quite uncertain. These ical results may prove that every hour spent in the ital increases the danger to the patient; but this proves my with regard to labours of one, two, or four hours' durabecause in such cases there was no certainty as to actual h. The time stated in the report was the duration of labour in the Hospital.

The every wish to avoid controversial questions, that before too important to pass over. Professor Simpson's able return have been quoted as an authority for the most unscruss use of instruments. Women in perfectly natural and even abours may be delivered by the forceps; and if they be maded that it is dangerous to allow the labour to proceed it can be at once terminated, the argument is a justification immediate delivery. Thus those whom Dr. Blundell well makes as "obstetric reprobates" go about with the forceps to

deliver the child the moment it comes within reach, and we quote Professor Simpson as their authority for the practice.

This practice is not new; Chamberlen and Roonhuys followed it when the forceps and vectis were first invented. T mischiefs done by the followers of these men led a succeeding generation to protest strongly against this abuse, some emine and experienced men, as Osborne, almost excluding the force from practice; and thus, ever since, a struggle has been going between those who consider the art of midwifery to be the quidelivery of the child, and those who believe it to be the art assisting nature to overcome a difficulty. Those names we stand highest as men of eminence and of the largest experient are perfectly agreed upon the impropriety of unnecessary integerence, or, as Blundell describes it, "mischievous meddling."

Professor Simpson's statistics show the proportionate mortalistic in protracted labours, but do not, could not, state the mortalist if the duration of labour were shortened by instrumental interference. It is assumed that the mortality would diminish; by this is not proved. We have endeavoured to determine the question in the only way which seemed to us practicable; by comparing the results where the forceps had been used to conclude labour, and where it had been allowed to proceed in protracted course to terminate without assistance.

For this purpose, the only reports upon which we can dependent those of the Dublin Lying-in Hospital. In all others we have forceps operations, and the results to mother and child, but whave no knowledge of the effects of merely protracted natural labour

In this respect, therefore, these reports from their fulness an accuracy are especially valuable. Three reports have now be published, giving the results of different—we might say—opposite practice under precisely the same circumstances.

Reports of	Total Cases.						Forceps Cases.					Vectis Cass			
Dr. Collins	16,654	324	L.	U.	Chile L. 263	D.	24	L.	bers.	Chile L. 16	D.	3		D.	Call
Drs. Hardy and Me. Clintock Drs. Johnston and Sinclair	6,634	171	162	9	119	52	24	19	5	11	13	17	17		8
	13,748	247	235	12	198	49	200	189	11	171	29		**		4
	37,036	742	696	46	580	162	248	228	20	198	50	20	20	**	1

he total of these reports give the following results: 742
hen having labour protracted beyond twenty-four hours, were
rered without aid; 46 died, being nearly in the proportion of
16: 162 children were lost, being in the proportion of 1 to
248 women were delivered by the forceps, and of these 20
10, or 1 in 12.4: 50 children delivered by forceps were lost, or
11 in 5.

far, therefore, as the general results are concerned, the tality of mothers in protracted labours will bear comparison that where the forceps were employed. In both instances maternal mortality is higher than the average, because it was ssible to separate cases of puerperal fever from ordinary ars. Of necessity, therefore, the mortality was increased. acing, however, the question in the clearest light, the pracof Dr. Collins, who only used the forceps once in 694 cases, be compared with that of Dr. Shekleton (Johnston and air's Report) who used it once in 683 cases. Both were in e of the same hospital and of similar cases. The deaths of ers delivered (without the forceps) in protracted labours, 1 in 16. (Dr. Collins's Report). The deaths of mothers ered with the forceps, were 1 in 18. (Drs. Johnston and air's Report.) If this difference on the one side be compared that on the opposite (1 in 12.4) from the total results, it be said to disappear; proving that, in cases of difficult labour, are of necessity protracted, mere duration does not increase

you to Dr. Churchill's valuable work. He has collected eports of British, French, and German practice, and arrives

following conclusions:-

cortality.

Among British practitioners, we find 594 forceps cases in 545 cases of labour, or 1 in 249.

Among the French we have 339 forceps cases in 47,475 pr-cases, or about 1 in 140.

And among the Germans, 7074 forceps cases in 755,593 mr-cases, or about 1 in 106½." (Churchill's Midwifery, 142, 343.)

Observe the increased proportion of these operations in G practice, as compared with French and English; the nun which, however, does not exceed 1 in 100.

The results of these operations are thus stated:-

"If we add together the number of forceps cases who result to the mother is stated, we shall find, that of those d by British practitioners, of 812 forceps cases 38 mother lost, or one in 21½.

"Among the French and Germans, in 4042 cases, 142 n were lost, or about one in 34.

"Whilst of the children, the British statistics give 142 694 cases, or about 1 in 5; and foreign statistics, 858 in cases, or about 1 in 5\frac{3}{4}." (Op. cit. p. 344.)

In the tables of foreign practice, the French returns at imperfect as to the mortality of the mother, not sufficinfluence Dr. Churchill's calculation. We may therefore the proportion (1 in 34) of maternal mortality as being German. In the German returns, there is, however, one reable feature which may explain this result; their frequentage too frequent—use of the forceps. The following will shew the proportions in which the forceps was used different eminent practitioners of Germany.

Name.	Place.	Total Cases.	Forceps Cases.	Prop
Ricker	Nassau	304,150	4,223	75
Riecke	Wurtemburg	219,303	344	637
Klein	Vienna	35,417	730	48
Boer	Do.	29,961	119	259
Schwerer	***	21,804	194	115
Jansen	Ghent	13,365	341	39
Moschner & Kursak	Prague	12,329	120	103
C. von Siebold	Berlin	1,634	212	8
Kluge	Do.	809	55	1.5
Ritgen	Giessen	180	20	9
Carus	Dresden	2,908	184	75
Kilian	Prague	2,350	120	19.5
	-	644,210	6,662	96

hus, while the proportion for the use of the forceps, according e above table, is about one in 96 cases, and, according to Dr. chill's estimate from a larger number, one in 1061, we hat Kilian employed it in every twentieth case; Carus and e in every fifteenth; Ritgen in every ninth; and E. von Siebold ery eighth case. This remarkable difference can only be ined in one of two ways; either, as Dr. Churchill supposes, their hospitals being on so small a scale are reserved for orst cases met with in exterior practice among the poor," therefore operations were more frequent; or they adopted ractice of using the forceps in natural labour in order to eviate the process. Such a course would greatly diminish reportionate mortality; because, whatever other injury might one to the patient by this unnecessary interference, death d not be the consequence. Thus, if we assume that one in as the proportion of deaths in 100 difficult forceps cases of ar, and that 50 cases of natural labour delivered by the ps were added to these, five deaths in 150 cases would the proportion to one in 30 cases. Every experienced titioner knows that his cases of difficult labour are "few and between," they do not return upon him in every eighth or case; therefore, if the forceps be used in the proportion of in ten, it is clear that they must be employed in natural w. We have endeavoured to prove from the fairest review tatistical evidence we can make, that, in difficult labours, so much judgment is required, there is no essential rence in the maternal mortality, whether the forceps be used The deaths of children are also alike, one in five cases. be total result" says Dr. Churchill, "is that in 5,731 cases" forceps operations) "998 children were born dead, or about 1 (Midwifery, p. 344.)

We have shewn (p. 275.) that in protracted labours the sof children were 162 in 742 cases, or about 1 in 42, an exterial difference. Hence in such cases the experienced extiner may exercise his own judgment, uninfluenced by fear daying assistance on the one hand or of affording it on the case. In fact, every case of difficult labour requires to be

considered individually, and the treatment must vary with conditions. If it should happen, as in many of Dr. Colinia of that time was necessary in order so to mould the head to inequalities of the pelvis, that it might pass through the patitioner need not be under the apprehension that every he shalow increases the danger, and be led against his will to mischievens interference. If, on the other hand, the case at the indicate a chance of saving the child and shortening his without injury to the mother, he will not hesitate to interfere

We have endeavoured to show that the mere protection to show that the mere protection to show that it stronger language than Naegele uses:—

we admit," he says, " that proportionate difficulties conding to the constitution of each individual and an effect execution of each individual and an effect execution of the mass conclude that an abbreviation of the proposed we must conclude that an abbreviation of the proposed we must conclude that an abbreviation of the proposed with the preservation of the health depends has taken play that expansion of the mother, that a premature and measure of the difficulties cannot be a matter of indifferent matter and proposed with the functions of nature that and the rank of instructions with the functions of nature that the rank of instructions the health, though this should where the same time afterwards."

he reside to be remaine a question of this kind, we must trust not represent than to statistics. The constitution of the parametric than to statistics. The constitution of the parametric than to delay are important elements to guide present the rate of Pr. Collins "to wait if the head to ever so slowly " was founded on a class of cases in which committees was strong, the pelvis probably masculine, and danger and delay but inflammation. If inflammation did exist now any presentatory symptoms of it, time might the modeling of the head to the pelvis much better than the modeling of the head to the pelvis much better than the modeling and therefore Pr. Collins's object was to effect by what he know could not be accomplished by instruments such delivery of the patient.

But there are also cases where such a rule will not a

macs in which the constitution is weak, the pains perhaps feeble, and there is every evidence of inability to expel the child. In such cases, although the head is moving slowly, delay would indeed be dangerous; exhaustion and suspension of labour would be the result, with all its serious consequences.

The judicious practitioner, dealing with a constitution such as this, will not hesitate to render assistance the moment he can do to; while he will not interfere with the robust patient in active abour, so long as nature seems equal to her duties. The slow alvance of the head is viewed in each case in a different light.

We have hitherto spoken of the use of the forceps in a case of difficult labour when the head is in the cavity of the pelvis, but that shall we say of its use in natural labour to abbreviate the press? Is not the clear language of Naegele a sufficient warning? The instrument, even in the ablest hands, cannot always fact the delivery as safely as nature will. Injuries to the neck of the womb, only known long afterwards, when inflammation, theration and prolapsus take place; lacerations of the perinaum, a common occurrence from forceps operations; and even vesicotarial fistula—all may be caused by the forceps improperly used; and it is used improperly when its necessity is not proved.

With regard to vesico-vaginal fistula, it is difficult to trace this exident in all instances to the use of the forceps. When a frees operation is described to us, we are seldom told that any mischief is the consequence. The splendour of success is very anding; and, while we admire the operation, we are too often left a the dark as to its effects. Nevertheless, we have been able to thre this accident clearly to the use of the forceps in several stances, while, on the other hand, Dr. Collins records only one e of vesico-vaginal fistula in the whole of his report of 16,654 and that was a case of perforation; consequently this accinever occurred in those protracted cases which were demed naturally. The principal cause of difficulty in Dr. Collins's was the large head of the male child forcing its way through ry osseous pelvis: the pressure on the soft parts must be great, and, if fistula could be produced by great protraction abour in cases that ultimately were delivered without assistance, it must have been an accident of frequent occurrence in these cases, the soft parts being so much compressed: but such did not happen, and therefore they afford a very favourable contrast to cases delivered by the forceps in nearly similar circumstances.

If we have placed this subject before you with sufficient clearness, it leads us to the following conclusions.—

That when the head is slowly passing through the cavity of the pelvis, interference with the forceps is not called for because of the time occupied, but rather because of the special conditions of the case.

That the use of this instrument is only justifiable when some clearly proved necessity arises; that the time occupied in a labour is *seipso* no justification; and that therefore the delivery of patients by the forceps merely to abbreviate a slow but natural labour is highly improper.

Lastly, that such uncalled for interference renders the practitioner responsible for all the consequences which ensue; and therefore, whether it be inflammation in the pelvic cavity leading to permanent lameness, inflammation and ulceration of the neck of the womb, laceration of the perinaum, or vesico-vaginal fistula, all will be attributed, justly or not, to the uncalled-for use of the forceps.

#### LECTURE XVIII.

LABORIOUS LABOUR (continued).

Management of Cases of Impaction. The management of cases where the head of the child becomes impacted has been, I regret to say, almost as much a question for controversy as that which we have just discussed. It is admitted that the child must be delivered by the resources of art; but how these resources are to be applied is the matter in dispute. Some consider that

is there cases the forceps, skildully employed, may effect the it view; the woman may be thus delivered, and possibly if preserved. Others dread such application of the instructure of the injury that may be done to the passages; equently they esteem the probable danger to the mother risk too great to encounter for the very slight chance of he child. Hence the question lies between perforation send of the child and its forcible extraction by the

Id be most desirable to determine the rule of practice in y difficult cases, by an application of the same principle proposed in the last lecture. If we could compare such have to be delivered by the forceps when the head was, with those in which recourse was had to perforation—ald contrast the results—we might be able to arrive at a n that would satisfactorily resolve our doubts upon the but, unfortunately, that is impossible. We have no I knowledge of the effect of the forceps in these special and the mortality that is reported under the head of on seems to be disproportionately increased by the ances under which the operation has been generally per-

the earliest period, the profession have been accustomed upon craniotomy with dread—we might almost say, with A natural reluctance to destroy human life—no matter nat necessity—has been greatly increased in some counceligious prejudices; and the anathema of the doctors of onne still exerts an influence that paralyses the judgment actitioner. Hence we read of cases allowed to remain ays in labour, until not only the death, but the putre-of the child, gave evidence that the perforator might be I without any stings of conscience. The result of such was, as might be supposed, inflammation of the passages, to such an extent that the mother was sacrificed to this nation; and hence in the tables of mortality, we find mother in every five, and sometimes one in every four, died operation. We cannot, therefore, determine the rule of

#### LABORIOUS LABOUR.

In these experiments, more force was used than you conventure to exert if the child were living, and yet the spanned was scarcely sufficient to admit the blades of the insument to be introduced within the pelvis. They seem to therefore, conclusive as to the limited power of the forceps when used as a compressing instrument.

It has been objected to Baudelocque's experiments, that the of the dead child is more incompressible than that of the limit one; and therefore that the latter may yield to the form although the former will not. We confess we cannot perceive force of this objection. The head has been already exposed with powerful pressure of the pelvis, and is impacted because it can yield further—it becomes incompressible. Neither will it yield any force which may be applied by the forceps; but, in making the attempt, the soft parts of the mother are of necessity contact the cranial bones are pressed in, perhaps broken, and cerebal congestion is increased. It is impossible to grasp the forceps for the purpose of moving the impacted head, without applying to its

d'après l'écartement des branches de l'instrument, à l'extrémité opposé à celle des serres, et le degré de rapprochement qu'on leur fait éprouver sust d'extraire la tête, ni d'après les forces qu'on emploie pour les rapprodifainsi. 4° Enfin, que les diamêtres qui croisent celui suivant lequel se comprime la tête, loin de s'augmenter dans les mêmes proportions se celui-ci diminue, ne s'augmentent pas même pour l'ordinaire d'un quat se ligne; et en deviennent quelquefois plus petits (Op. Cit., pp. 20, 21.)

The following are the results of eight experiments, briefly stated:-

**	Reduction in Biparietal Measurement.	
1	3 lines	At this degree of reduction, the suture was torn, and the brain escaped. Instrument bent.
3	1 2 lines 4 lines 4 lines	Bones very soft, sutures and fontanelles loose. Equally soft.
2	41 lines 3 lines 2 lines	The same.  The ninth experiment is not stated by Baudelocque.

and powerful force; and if this force be maintained, such ful, constant, and at the same time unequal pressure, acting head of the child, is much more hazardous than even the ression of the contracted pelvis, which is known to be a nt cause of the child's death.

possibility, therefore, of reducing by the forceps the imhead to such a degree as will enable you to draw it safely head to such a degree as will enable you to draw it safely head of the male child, advanced in its ossification, dged in the deep narrow cavity of the masculine pelvis, we any, it is impossible. There is one case, however, in the forceps may be successfully used in the same apparent to f impaction; that is, in the diseased pelvis. A slight ity of the cordiform pelvis, by which the planes of the are pressed in and contract the cavity, will cause impaction, pelvis is capable of expansion; and, as the cavity is irrethe forceps may be so applied as to avoid much pressure soft parts. The instrument may be therefore used, and ficulty overcome by steady traction. But this is different he case we have been considering.

to the Mother. We have pointed out the effect on the Let me now direct your attention from the child to the r; and admitting it is possible, and only possible, to save mer, let us inquire into the risk to which the latter is d, in the attempt to accomplish this object. The very of the case implies an unusual degree of pressure on the arts between the head and the pelvis; congestion must be sult: and if inflammation have not already taken place, the es are in such a state that inflammation could be most excited. The blades of the best contrived forceps cannot plied to the head when it is tightly impacted in the pelvis, at bruising the soft parts to a certain extent. The contusion nes a centre around which inflammation takes place: this acrease to any extent, and terminate either in a local slough e compressed part, or in a general gangrene of the vagina, inflammation assume an erysipelatous type. In the former the separation of the slough may produce a vesico-vaginal In the collimanteernance country imageness to her; but i that to the colling as an annual the moment it takes place if it is the colling in the control of the control of the control of the collinger objective. But it is the control of the control

It must been imperies that the audinomore is quite unon in these cases: because if the evaluation be clear that the cament passe the number is a removal time better; but the is not sufficiently mean to marrow a luming child. In so these cases with every approximate if impaction, the but here so moulded that the child has passed after all. To from a vaginal examination that the child certainly can delivered, may be only a bold assumption, and to destroy; on such an authority would be a given us miscake.

No far as the safety of the matter and the preserval the passages from injury are concerned, there is no comp between perforation and the forceps. In this respect perforation is a far safer operation, if ordinary contion be exercised; t invition the sole objection that condemns it, is the fact the child must be destroyed, either by the uterus, or by the We firely admit the cogency of the argument; bu is a magiliar against the still greater objection, that among to make the child, the soft parts of the mother I in the A most dangerous extent, while the preservation have they are given to t oh while it there be an except when the with difficulty saved, the case is recorde and with the success to years when the risk to the mother is so great, and the that the l A safety of the mother is a

A lineway of cases that illustrate the surveys. On the contrary

the post partum accidents of a skilful operation are deeply concealed in the shadows of the back ground of the picture, the surprising, the almost miraculous, power of the instrument is put prominently forward, with all the vividness of a most glowing and high-coloured description. Thus the truth is concealed from you, and so would remain, until exposed by your own dearbought experience; except that you find scattered through the works of men whose skill is acknowledged, ominous hints and enxious warnings against the improper application of these inaruments. Many evidences might be quoted to this effect: we shall direct your attention to a few of them. Your former respected professor, Dr. Davis, paid a great deal of attention to the subject of instrumental labours, and was disposed to advocate a much bolder use of the forceps than what we should recommend; evertheless, he candidly admits, that "of all the instruments used in the practice of midwifery, those of the present class [the ferceps | are unquestionably the most dangerous to the mother, insmuch as, in all cases where the forceps are used, the maternal tissues are more or less liable to contusion. All the fangs and framework of the instrument are made of tempered steel; and, Let them be ever so well covered and defended, they will still ntain a great degree of hardness, calculated to bruise and to but the soft and living texture which might be interposed between their covered surfaces and the solid walls of the pelvis." Obstetric Medicine, p. 786, 8vo. edition.)

The same impression of mischief leads Dr. F. Ramsbotham to turn the practitioner that "cautiously and tenderly must this maintrument be used! We must recollect that no sensation to be imparted to the operator's hand of any injury that may be done to the woman; and we must remember that one injusticus thrust, one forcible attempt at introduction, one violent that at extraction, may bruise, may lacerate, may destroy!"

\*\*Contestric Medicine and Surgery\*, p. 299). Dr. Blundell admess his pupils thus:—"When, however, you lay your hand the tractor or forceps, remember that the accoucheur who needdlesome may be guilty of occasioning laceration of the naturn, rupture of the vagina, compression and death of the



of the practice of the kinglin of Wirmling woulds of a very large number of mass and inners in which the attempt was made unsuccessfully to impacted head by the forceps. He observes—"Alt perforation was preceded by attempts to apply the to the great injury of the mothers, because performed by such attempts, presented much mor results.

The trials at extraction with the which many accoucheurs continue, to the extinuinfant's life (although foreseeing the necessity for prechaust the mother to that degree, that she necessity for prechaust the effect of these violent efforts."\* In allusi

<sup>•</sup> Riccks, in his report, gives 84 cases of perforation, in 3' mother died, being in a proportion rather more than one in 1 plants it thus:—

<sup>&</sup>quot;Prompte toujours la perforation du crâne avait été préc 1800 pour appliquer le forceps, et cela au détriment des pouténations non précédées de ces tentatives offrent des rest pour les autres. La répugnance des accouche proféssion du crâne lorsque l'enfant est encore en vie est entaitement pour les mères. . . . Les tentatives d'extrations du brancount d'accoucheurs continuent jusqu'à l'exti

iries, Dr. Collins remarks:—" It is from being thoroughly inced of these facts by long and extensive observation, that isider the forceps quite inapplicable when the head becomes In the pelvis, and the ear cannot be reached by the finger pt by violence, in consequence of disproportion existing ben the head and the pelvis. . . . The results I have sed from such practice [delivery by the forceps] were most ssing: in some, the neck of the bladder or urethra either rated, or the injury by pressure from the forceps so great as produce sloughing and consequent incontinence of urine; in rs, the recto-vaginal septum destroyed, either of which lers the sufferer miserable for life; and in two cases, where mouth of the womb was imperfectly dilated, so much injury ted on this part as to terminate in death." (Practical Treatise, 2-13). Dr. R. Lee, in his Lectures, quotes the paragraph length from which these passages are extracted, and adds The accuracy of these remarks is fully confirmed by all the eps cases which have come under my observation, which meed sixty in number." (Lectures, p. 305).

would occupy too much time to accumulate further testiy. We trust sufficient has been placed before you to auise the conclusions at which we have arrived, and which are
submitted to you; viz., that when the head is impacted in
pelvic cavity, it cannot, unless in the exceptions we have
ed, be delivered by the forceps without such injury to the
sages as might endanger the mother's life; that the probaty of preserving the child's life is not sufficiently certain to
lify an attempt which might be so hazardous; that in the
at majority of these cases the death of the child takes place

4

<sup>&</sup>quot;I wish that my present subject permitted me also to state what I have and on dissecting the parts after the use of the crochet, and, in particular, the forceps had been used, as I must presume, in a case improper for m. The injury which the seemingly harmless instrument—the forceps, capable of doing, might then be proved, and a wholesome admonition in to young surgeons."—Sir Charles Bell on the Muscularity of the must Medico-Chirurgical Transactions, vol. iv. p. 339.

naturally, and it may be removed before symptoms dangerous the mother present themselves; and lastly, that if it is happen that the reverse occurs, and danger to the moth whether from exhaustion or from extending inflammation—is cased before the death of the child, then perforation is compared to the mother a certainly the dangers that result from a forcible extraction by forceps.

We have been obliged to dwell at some length on these parties omestions connected with the practice of midwifery, the bear is fixed in the cavity of the pelvis; we shall the anti-valued very truefly to the last stage of delay.

Retrodation . In Head at the Outlet. When the head the vocation is many arise from the perinseum being rig Fine the numerate being too narrow, so that the head of nos an newsa the schie-pubic rami. In either case, th a. Many communes recomme on the perinseum, which must e inthanimation, and increase its rigidity, if the delivery of home he not reserved. The strictest attention is necessar subsitive any remisency as inflammation in the peringum; for saums muse he see mount employed, and, if necessary, dep by heetnes. By this means a rigid perinseum will in mat stances gradually view to the head, and allow it to pass sometimes the vectis may be passed on the pubic side of the to assist its advance. Great caution is required not to brin head down too suddenly on the perinasum, which must als protected by the counter-pressure of the hand. Where the culty arises from narrowness of the pubic arch, the force preferable, both because you have more power to overcome resistance of the ischiatic tubers, and there is less danger of public blade injuring the adjacent soft parts than if the were employed, and much force used in the extraction.

ACCIDENTAL OBSTRUCTIONS are occasionally causes of difficult in the second stage of labour: and, when such are present your notice, they always demand the most serious atterfarst, because the majority of them depend upon some or disease, the existence of which renders labour, if at all so

the obstruction is often very obscure; and if a tumour impede progress of the head, it may be doubtful whether it is ovarian, speid, or malignant. The extent of its attachments, and the ability of removing it, may also be a difficulty. You have preasons, therefore, for extreme caution and a very guarded mosis under such circumstances.

ecidental obstructions may be produced by Bands or Ad-

and are sometimes formed across the vagina, retarding the nee of the head. A stricture may be found there just as in methra. The walls of the vagina have been sometimes united certain distance. In all such cases there is a certain int of danger, because the extent of the injury done is not as confined to the part which obstructs the head. The sof previous inflammation may have left the vagina very thinned, and badly calculated to resist any extreme are. Thus it may be easily lacerated, if labour be suffered time for any length of time.

band may be easily divided by a guarded bistoury, and struction removed; but a stricture requires more caution, by thinned portion of the vagina above the stricture should ray. It would be unsafe, therefore, to trust to the action uterus alone to overcome the difficulty; it will be necessary ly the forceps, if possible, and if incisions are made cauin the strictured portion, it will yield. This, however, is ways necessary, because sometimes the stricture will give without any incisions. A lady had been confined of her aild in the country; the labour was severe and protracted, ild was still-born, and she made a tardy recovery. It was ards discovered that the vagina was closed, and she was to place herself in care of the late Dr. Lever, who, with aal skill, opened the passage, sufficiently at least for inter-She became again pregnant, and fearing a similar labour, at once to London for her confinement. She requested Dr. assistance, who found it necessary to deliver the child by ation. She became again pregnant; and being very anxious

to have a living child if possible, and also to be placed under the influence of chloroform, if any operation were necessary, all applied to me. An examination was made when labour commenced; a band with a crescentic margin projected from the sacral side of the vagina, narrowing the passage to about the sit of a shilling. The pains were active, dilatation soon took place and the head descended to the stricture. Here it was, of cours arrested; but, as the stricture yielded to the action of the uterus, the forceps was applied, and after several powerf efforts, acting with the pains, which were strong, the head we brought through, and a large living child delivered.

It is possible, therefore, to overcome a stricture of this kin without incisions, but the forceps should always be applied regulate and assist the pains.

When the walls of the vagina cohere, the case becomes ve embarrassing, because they must be separated; and yet there a danger that the vagina may be cut through, if great caution not exercised. You have also the additional difficulty, that it almost impossible to ascertain the condition of the vagina behilf the portion that is united. Some risk must therefore be t countered. It is better to allow the labour to proceed sul ciently far to determine the extent to which the head may sep rate the parts adherent, employing every necessary means counteract any inflammation that may arise. The head m overcome the resistance to a certain extent, so as to render! division of the remaining portion much safer and more easy; b if this cannot be accomplished, the walls of the vagina must dilated, so as to expose perfectly the adhesion, which it is need sary to divide by cautious and frequently repeated incisions w the knife.

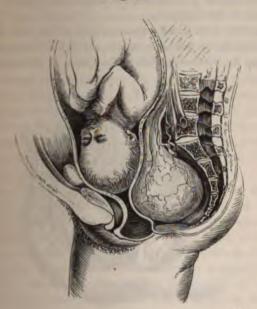
Tumours obstructing delivery are generally to a certain tent moveable, and may be soft and fluctuating, or firm a elastic. Sometimes the sacrum is the seat of osteo-sarcom forming a hard and perfectly unyielding tumour.

Ovarian Tumours sometimes descend into the pelvic cavit, and obstruct the head of the child. If the tumour consist several cysts, the smallest may pass down between the vagit

## OVARIAN TUMOURS COMPLICATING DELIVERY. 295

of rectum; cases are also recorded where very large tumours wound in the same situation. One of these cases is given by t. Merriman, along with a very accurate drawing of the tumour. In contents vary so very much in their consistence and den-





that they are not always easily recognised; but if there be sense of fluctuation, or even if the tumour be very elastic, probability is, that it is an ovarian cyst, containing fluid e or less deeply seated. This may be readily ascertained he grooved exploring needle; and, if fluid escape, the cyst be more freely opened. In these cases there is always er lest the pressure in the vagina should cause the cyst to t into the abdomen. The sooner, therefore, an opening is

<sup>\*</sup> Fig. 66. Ovarian tumour.-Merriman.

made, the better. The danger of these cases does not generarise from the delivery being obstructed, but from the ewhich labour produces on the disease; the tumour is necess exposed to a great deal of irritation, and may burst; the pains weakened, if not exhausted, by the struggle which takes pland, when labour is concluded, she is quite unequal to conthe effects of that irritation.

Polypus has been found sometimes to interfere with delili is possible that a moveable tumour of this kind, although larger may be driven down before the head. If it be small

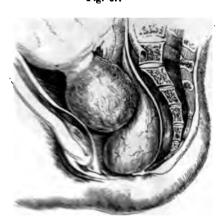


Fig. 67.\*

And the second process of the pressed back to the second process of the second passes beyon the second passes beyon the second passes beyon the second passes beyon the second passes of the second passes by ligature, it is a second passes of the second passes as much as possess of the second passes of t

<sup>&</sup>quot;by madeing of give a Read of the

We shall not here enter into a discussion of the comparative series of the treatment of polypus by ligature and by excision; his most be reserved for another opportunity. But, in reference whe present case, we should only observe that the risk of danbemorrhage after excision is not so great as to justify the action of the only alternative-destroying the child. have little difficulty in recognising polypus when it descends Now into the vagina as to interfere with labour. Beside the in fleshy feel of the tumour, it is extremely moveable; and be the head is pressed back in the interval of the pains, its morn shape and long narrow stem will be more obvious. It at likely that the ovum could be brought to maturity if a are polypus occupied the cavity of the uterus; it is, therefore, to assume that, when a polypus is found to impede parturiin, it must be attached to the mouth of the uterus, and thereit can be the more easily traced to its origin, so that you be every facility to assist your diagnosis.

Perous Tumour of the Uterus may be another cause of correction. A remarkable and very interesting case of this list is recorded by Dr. Beatty, in which the tumour was so large all apparently so attached, as, it was thought, to render the carian section necessary. It was agreed, however, to wait, and become the action of the uterus, as long as it might be done the safety. After some time, and to the surprise of those in candance, the tumour appeared to retreat from its situation, the the child began to occupy its place, and to present its foot: was seized, and the delivery with great difficulty completed. In child was still-born, but the mother recovered. (Dublin likeal Journal, vol. xvii. p. 411.)

Deter-surcoma sometimes grows from the sacrum. The bony may be so large as to render delivery per vias naturales possible, and therefore recourse must be had to the Cæsarian mion. But it may be small enough to prevent this necessity, whough it may be difficult to save the child. A case of this came under my own observation, where a tumour of about tize of an orange was connected to the middle of the sacrum; as perfectly immovable, and of bony hardness; the head of

the child could not pass it, nor was there the least hope through the narrow space the pelvic cavity; the head was therefore perforated, a child removed: the mother perfectly recovered.





Other Rare Varieties of Tumour. Beside these more use of obstruction to delivery, Dr. Drew detailed, many year very remarkable cases of tumours in the pelvis. patient, who was not pregnant, died in consequence of examination was made after death; there seemed to gethe left sacro-sciatic ligament a tumour, which "was round, about sixteen inches in circumference, of a final substance, without an appearance of circulation in it." seemed to be its principal attachment, because when the through it came away quite easily. The result of this satisfied Dr. Drew of the practicability of removing it tion; and, although a rare variety of tumour, it so

<sup>\*</sup> Fig. 68.—Osteo-sarcoma.

that very soon afterwards (as is often the case) a similar tumour came under his notice when the patient was in labour.

Dr. Drew states, "it was exactly the same. The tumour grew out of the right side, and occupied the whole cavity of the pelvis a completely as to admit of passing only one finger between it at the pubes, by which I could scarcely reach the head of the hild." Dr. Drew proposed to remove it, which was assented to. In incision was made through the perinæum, at the right side; to tumour was exposed, the finger passed before and behind its mot, which was easily divided with a knife, and brought away. The wound being dressed; labour proceeded; and in six hours the head, being within reach of the forceps, was delivered safely. The patient recovered rapidly. (Edinburgh Medical and Surgical Jamail, 1805, vol. i. p. 20.)

These rare cases may present themselves. If such should be pen, you have sufficient encouragement not to despair alto-peter of giving relief.

# LECTURE XIX.

#### OBSTETRIC OPERATIONS.

In instruments employed in operative midwifery may be tranged into three classes. 1. Those calculated to preserve the lives both of mother and child, as the Vectis, the Forceps. The Fillet was formerly used for the same purpose, but is now discarded from practice. 2. When the preservation of both lives is impossible, those intended to preserve the life of the mother by marificing the child. These include the Perforator and Crotchet, the Craniotomy Forceps, the Osteotomist, the Cephalotribe. 3. When the delivery of the child cannot be effected even by such means, and the safety of the mother is more than doubtful, there still remains the operation of opening the uterus through the



preserve the life of the mother without reference to the chiwhen this cannot be done, or, at least, seems so from the stances, 3rd, to save the child if possible.

OPERATIONS TO SAVE THE MOTHER AND CHILD.—Th and Forceps are used for this purpose.

Vectis. The vectis consists of a single blade, shape blade of the forceps, only more abruptly curved; and used in the manner we have recommended, it is intended as an extractor, to assist the feeble action of the ut correct malpositions of the head, or to overcome any resistance of the perinseum. It is not, therefore, an ins of much power; and its use is limited to the removal c impediments to the passage of the head. The advocates instrument do not, however, confine themselves to restricted application. They employ it as a substitute forceps, and even claim for it a superiority over t forceps, in those cases in which the head is arrested in t of the pelvis. We must dissent from such a view of the of the vectis: in order to give to it the same power wi forceps acquires by the counter-pressure of the bla amount of force must be employed which might 1 dangerous to the patient. Imagine the head fixed in t

After giving directions as to placing the patient, etc., he proseds : "The preliminaries being settled, the next thing is, the afe introduction of the instrument. To do this with facility and safety, the accoucheur should kneel on a pillow by the side of the bed, and introduce all the fingers into the vagina as far as the brim of the pelvis, at the side of the sacral promontory (either right or left, according to the situation of the occiput); as he passes up the instrument, the fingers should be gradually withdrawn. The instrument is to be pressed up into the cavity of the uterus, being careful that it is in the inside and not on the outside, gliding it over the parietal bone till the screw part of the handle presses on the fourchette of the os externum. This attained, the handle should now be held firmly in the right hand, while the index and middle fingers of the left, fixed about two inches from the screw part within the vagina, become a felcrum. On this fulcrum, or point of support, the instrument is made to move from the sacro-iliac symphysis towards the bollow of the ilium, by the action of the right hand on the handle. In this way it describes the section of a circle, and glides on the occiput. Should the occiput point to the right ilium, the left hand must be employed; if to the left ilium, the right hand must be used. When a labour pain takes place, the accoucheur should gently aid it by drawing down in the line of the axis of the pelvis-i.e., an imaginary line, directed from the umbilicus through the centre of the axis of the pelvis. In this my the occiput is depressed, while the chin approaches the thild's breast, and its head is reduced to the smallest compass, and is thus enabled to pass through the cavity of the pelvis. As soon as the occiput is brought so low as to press on the Princum, the instrument should be withdrawn, and re-intromed with the usual precautions. The object now in view is, to place the instrument over the face of the child. To effect this, the hand must be passed up, as at first directed, to the right w left sacro-iliac symphysis, according to the situation of the face. When the instrument gets above the brim of the pelvis, a finger or two must be inserted by the side of the instrument, and pressed on till it (the instrument) passes over the forehead

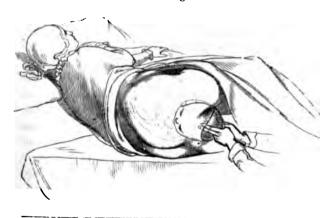
on to the face, so as to embrace the chin. An imagin drawn through the centre of the child's mouth, ear, and is the present situation of the instrument, and quite the of what it was before. The practitioner has now noth but to draw down during the time of pain, increasing the according to the degree of resistance." (London Methodology, 1823, p. 378—381).

Such is the mode in which Mr. Gaitskill applied it head was high up within the cavity, or in the brim of the but we confess our fears to recommend to you such a remploying the vectis. The cases in which it may be most advantage, are those in which the head is arrest outlet, in consequence of the uterus being unable to over resistance of the perinæum. So long as the pains cont any regularity and strength, you should not interfere, e the purpose of preventing inflammation; but when become feeble, suspended, or return at long and irregularity, then the vectis may be applied with even more; than the forceps, because there is less risk of injulperinæum. We shall proceed to describe to you the reperforming such an operation.

You must first observe the preliminary measures in all obstetric operations. The urine should be withdr the bladder by an elastic gum catheter, of rather a 1 (No. 10), and without a stilette. It is always safer catheter of this kind, because there is less risk of injuries urethra, if it should be compressed, than if the unvield catheter were employed. An enema should also be adm to relieve the large intestines: and when these points are the patient, lying on her left side, should be drawn as the edge of the bedstead as possible. The pelvis must more than usual, and if the patient has been lying on a not on a mattress, it would be advisable to place a hair under the hips. Adopting Mr. Gaitskill's position, kneel with one knee on a pillow, and in the interval of t introduce the first two fingers of the right hand bety head and the symphysis pubis: passing them on eithe

TERE TO I BE AT THE MENTION RECOV to the prince of the Total State of the Total State of the the record to the rest of the क्षेत्र राज<del>्याक्त क्षेत्र प्राच्या व प्र</del>व et land, क्षेत्री हेन् the letter levels and received niversis the The first the complete that the first first blood when has a reserved to the and and angles of the right and the control of th there is the currently it the black makes a very force in the mane of the instrument. If the much and seeing a applicable of the gradually curred, like a vill the first to premia if any fixed be used in in the tree of most with peint particularly. the martiness places. When the blade is tree is nearly experis with a slightly oscillation a tive war reactive the ear, which is now placed very me more and verific. The handle must, there reset out in real interthat the edge may pass over Let the is saidy accomplished, the finger may be and the mental passed forwards to its proper position the the marke is new completely altered, and look of and forwards, its junction with the blade correspond to the sale with Egament. When the instrument is I - then in the language of Dr. Denman), grasping of the instrument firmly in the right hand, wait for at a pair." which, although absent before, almost when this new irritation is applied to the uterus assist the pain at this stage of the operation, great required. It is here that the mischievous principle of of the instrument, as a lever, may do so much many, utis or ischio-pubic ramus be made the fulcrum, the must be contused, and a slough may be the result. If this, the fingers of the left hand press the blade gainst the head, and thus guard the soft parts from making, as it is said, a fulcrum of the fingers, the anly altered from one of the first order to one of the In the first, the os pubis is the fulcrum; in the second, the head and face of the child. Serious injury may be d either case. You should, therefore, carefully avoid usin vectis as a lever; and in order to do this the more certai is better to pass two fingers of the left hand between the and the perinæum, and to grasp the shank of the instr with the remaining fingers; counter-pressure is thus as with the forceps, and the vectis may be used solel Again, in the language of Denman, we woul tractor. "When the pain ceases, let the instrument rest, and return repeat the same kind of action, alternately restir acting, in imitation of the manner of the pains." This c proceeding being followed, the head will soon advance an strongly on the perinæum. The introduced fingers may t withdrawn, and the vectis maintained in its position, rat the purpose of acting with it, if the pains should again feeble, than to extract the head by its means, if the utsufficient to expel it; thus the perinseum will be better from injury.

Fig. 69.\*



<sup>•</sup> Fig. 69. Extraction with vectis. (In these sketches the pe etc., is exposed, to shew the position of the head, which is fair lined.)

When the vectis is used to correct malpositions of the head, it is a not to use one too much curved. One blade of the forceps often answer in these cases; the head is higher in the pelvic r, and does not generally press on the perinaum; too great rature would interfere with the introduction of the instruwhile, on the other hand, there is seldom occasion to use an extractor, because, when once the correction is made, ad will readily descend without assistance.

ependently of its limited power, the vectis is liable to some antages which should be guarded against. It is necessary to the instrument very firmly, and to exert your strength to t in its place. Sometimes the vectis will not retain the a securely that the instrument may not slip; and, though asily replaced, still a good deal of force is necessary to t in its position. If, in such a case, the handle be smooth und, there is also a risk that it may turn in the hand it your knowledge, and therefore do mischief. The should always be made rough, and with one side, at flat.

ceps. The forceps is more generally used in the practice dwifery, and is an instrument of much more extensive ation. It may be employed when the head is at the outlet, cavity, or in the brim, of the pelvis. Hence you will n obstetric authors, two kinds of forceps spoken of-the nd the short forceps. It is necessary to bear in mind this tion, because the mode of operating with the latter is not me as with the former instrument. This is the more imit, because there seems to be some degree of confusion in scriptions given of operations with the long forceps. For ce, when the head is arrested high in the cavity of the , a longer forceps is required than when it is at the outlet. peration in the former case is therefore sometimes mentioned lelivery by the long forceps. In speaking of operations with ong forceps, we would be understood to mean, not only a ent kind of instrument, but a different mode of applying it that adopted when the short forceps is used. In order to this confusion, we shall describe the operations required in

three different cases: first, when the head is resting on the name, the operation with the short forceps; secondly, whe arrested in the pelvic cavity, which might be considered an mediate operation; and lastly, the operation with the long to when the head is fixed in the brim of the pelvis.

The Operation, when the Head is resting on the Peri may be undertaken in cases similar to those in which the is employed, and is preferable, if there be any diminution transverse measurement of the outlet. The preliminary statis operation are the same as for the vectis; but it me remembered, that the temperature of these, as well as obstetric instruments, should be raised to that of the vagin they should be greased before being introduced into the partnesses previous arrangements having been made, the pubic the forceps, with the lock looking upwards, must be passed to the handle may be raised towards the pubis, and there

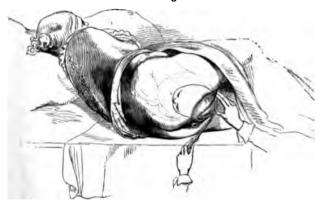


Fig. 70.\*

tained by an assistant in its exact position. The handle not be moved to the right or to the left side, because it is

<sup>\*</sup> Fig. 70. Passing of the pubic blade.

## FORCEPS OPERATIONS. HEAD AT PERINÆUM. 307

extance to observe the precise direction of the pubic blade at the sacral blade is being introduced. Taking, then, the soft the former as your guide, as soon as the pain ceases, pass largers of the left hand between the head and the perinæum, holding the sacral blade lightly by the handle with the right sendeavour to guide it so along the introduced fingers that tage of the sacral may pass along the lock of the pubic





Le. As the sacral blade passes forwards, and the locks aptech each other, the handle of the pubic blade should be that in the left hand, and drawn slowly towards the periture. In this manner the locks will glide together, and the trument be applied without much difficulty.

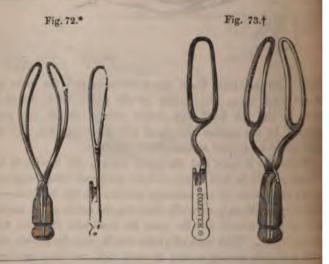
When this is done, and the pains return, the handle of the teps should be held firmly, and, the peringum being supported be same time by an assistant, traction should be made—at tvery moderately, carefully observing the action of the uterus; t as you perceive that the pains are inefficient, the force may increased. With each effort the handle may be drawn, first a slightly waving motion to each side, and then upwards,

<sup>\*</sup> Fig. 71. Introduction of sacral blade.



towards the pubis, in order that the head may pass in the ax of the vagina. When the head advances, and you are satisficant that the difficulty is overcome, it is better to leave the rest to the uterus so long as it acts, because there is less risk of injury to the perinæum. When the perinæum is tightly stretched out the blade of the forceps, as this passes out with the head of the child, it is very easily lacerated. The time that the operation occupies is of no importance. The object you should have it view, is to assist the action of the uterus, not to anticipate the pains, nor to hurry the delivery. Thus a considerable time may elapse before the operation is concluded. Be careful, therefore not to make unguarded promises of prompt relief.

The forceps used in this operation is altogether shorter that that employed in either of the other operations. It is about nin or ten inches long; the distance between the extremities of the blades is about one inch and a-half; that between the centrabout three inches. The intention is to prevent the head of the

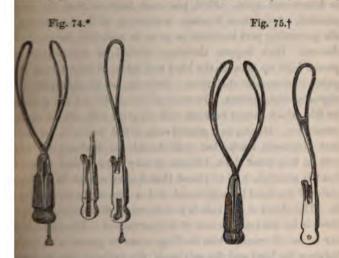


<sup>\*</sup> Fig. 72. Denman's short forceps. From fac simile of one in passession of the Dublin Lying-in Hospital.

<sup>†</sup> Fig. 73. Conquest's short forceps. Fenestræ wide; shanks twisted.

i from being much compressed in the effort to extract it. re is some difference, however, in the construction of these innents, which will be understood by the examples placed before The short forceps of Dr. Denman (fig. 72) had the extres of the blades closer, but the handles were very short, with same object, that of preventing much compression. The t forceps of Dr. Conquest (fig. 73) has the fenestræ wide, in r that the parietal prominences may pass through them. Dr.

ken's (fig. 74) and Dr. Collins's (fig. 75) are very similar in



ape, and correspond with the description we have just given; ly that Dr. Aitken's has a small moveable roller between the ides, to prevent compression.

The Operation, when the Head is arrested in the Pelvic Cavity, is which requires a much more attentive consideration, because a here that the difference in the practice of the most expe-

g. 75. Collins's forceps. Blades straight.

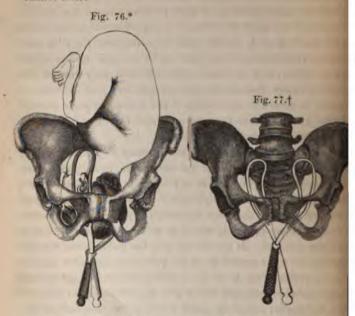
Fig. 74. Aitken's forceps. A small roller is fixed in one handle, moved by a screw, and is so adapted as to keep the handles sepathen the instrument is grasped.

rienced accoucheurs is so remarkable. We have already submitted to you our reasons for the rules proposed for your adoption They are, 1st, Not to interfere, nor to apply the forceps, if the head be slowly advancing, unless in cases where the pains are feeble, from a weak constitution; 2nd. Not to apply the forces when the head is impacted, unless in the diseased pelvis. The view of the operation which we wished you to take would confine it to cases of arrest. It is of importance, therefore, make a very careful examination per vaginam, before the delivery is determined upon. First, you must ascertain that the head is arrested. Sometimes it ceases to advance, while the tumour of the presenting part increases, so as to be mistaken for its further descent. Both fingers, therefore, should be introduced, and passed high up between the head and pelvis, in the interval of the pains, to determine the arrest. Secondly, you should decide on the degree of disproportion. In cases of arrest, the ear can generally be felt, which cannot be done without great difficulty in cases of impaction. Hence, as a general rule, to feel the ear is an important diagnostic mark; but you should not confine your attention to this point alone, because it may happen that, when the head is arrested, it is so placed that the ear cannot be felt, especially if the head be lengthened, and a tumour be formed upon it. The object of the rule is to determine what amount of space there is for the introduction of the instrument. Therefore, if the ear be out of reach, while the fingers can be passed with facility between the head and the pelvis-if the catheter can be passed easily-if you can press the head back without difficulty-and if the vagina be not swollen from the extreme pressure-then the forceps may be applied. Thirdly, you must decide upon the time of its application. It appears to me that four hours would be quite sufficient to allow the head to remain in the same position, to authorise your interference. But if there be the least indication of pain, swelling, or heat in the passages, you should not delay one moment from the time that these symptoms present themselves, when you are satisfied that the forceps may be applied. Promptitude is the secret of success, and in nothing is it more evident than in the case we are supposing. It is possible that the ains may be strong and frequent; and it is generally a safe resemmendation not to interfere as long as the uterus seems to have ufficient power, but rather to wait until the pains become feeble, the action of the uterus is suspended. Nevertheless, in the ase before us, you cannot act upon such a rule. If the head be prested—if the pains be strong but inefficient—if inflammation et in-to hesitate to deliver must be considered the most misbievous vacillation. Every hour spent in these useless efforts the uterus only increases your difficulty, only renders the peration more hazardous, and diminishes your chance of necess; because the application of the forceps to parts already affamed must contuse them to a certain extent, and if so, the contusion will terminate in slough.

When you have determined on the necessity for delivery by the forceps, and on the time for operating, the same preliminary arrangement should be made as in the former instance, using still creater caution in your antiphlogistic measures. If the vagina swollen and hot, the urine retained, the pulse quick, depletion some time before operating would be advisable; the urine being of course removed. If the ear be felt, the pubic blade may be passed in the same manner as in the preceding operation; but if not, the presentation must be carefully examined. You can usually trace the lambdoid suture passing upwards from the posterior fontanelle: direct the pubic blade along this, and it will guide it to the ear. You may also take the rule with regard to the pelvis, laid down by Dr. Rigby, and introduce the first blade behind the trochanter, still bearing in mind its relation to the ambdoid suture, thus the first step of the operation can be enerally taken successfully. The passage of the sacral blade anther more difficult. It may be introduced in the same manner in the former instance, but its advance is frequently checked wit approaches the brim of the pelvis. If such should happen, twery careful not to use force in pressing it forwards. It is letter to act with the pubic blade, for a short time, as a vectis; and, if the head advance, even slightly, the opposite blade will frequently glide into its place.

When the forceps is applied, it is well to dislodge the head

from its situation in the first instance; because it constant happens that in these cases of arrest some accidental displacement of the head is the cause of difficulty, which the uter cannot alter.



but when the head is relieved, it will glide into the correct postion, and may be delivered without difficulty. If, however, yo find that with the following pain the head is still arrested, the forceps must be seized firmly, and, in order to secure your hold, coarse napkin may be placed loosely round the handles. steady and powerful traction should be maintained as long as the pain continues; and when it ceases, the grasp of the instrument must be at once released, and remain so until the succeeding pain when the same steady traction may be renewed. Thus you wi

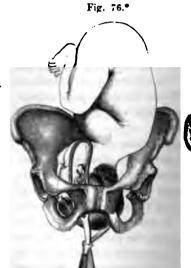
<sup>\*</sup> Fig. 76. Head in first position, shewing the application of force over the ear on the pubic side of pelvis.

<sup>+</sup> Fig. 77. Relative position of forceps and pelvis.

generally succeed in bringing the head through the opposing part of the pelvis; and, as it advances more easily and approaches the peringum, again recollect to leave it as much as possible to the efforts of the uterus. While the head is thus drawn through the pelvic cavity, you should bear in mind the direction in which must pass; that when the forceps is in the axis of the pelvic wity, the shank of the handles would lie between the ischiatic mbers, but when the head is in the hollow of the sacrum, the landles would then be directed forwards towards the pubes. You should therefore first draw, with a waving motion, directly towards you, and as the head advances, direct the handles forwards. It is necessary also to observe the rotation of the head, in to lateral direction, from the oblique towards the antero-posterior rement of the pelvis. At the same time, it is advisable nuber to follow than to guide the direction of the head in its menes; because, as it descends, it will naturally change its posiin, which might be prevented by the operator's awkwardness in holding the forceps, and attempting too hastily to turn it.

The Operation when the Head is Fixed in the Brim of the Pelvis differs from both of the preceding operations. The blades are applied over the occiput and face of the child, and not over the This may easily be done in the case to which we have confined this application of the forceps; but it would appear to extremely difficult and dangerous to do so in other deformities the brim of the pelvis. Two fingers, and as much as possible the right hand, should be passed behind the trochanter, towards be centre of the ilium, on the superior side of the pelvis; and, if is anterior fontanelle be felt distinctly, the longer blade of the brops (if they be unequal) should be passed over the fontanelle to the face of the child; the shorter blade may then be passed in e opposite direction over the occiput, guided by the lock of introduced blade. When properly applied, the handles look downwards and backwards towards the perinæum, and in the mis of the brim; traction must be made in this direction, and, ten the pain commences, the handles of the instrument should held, as in the former case, firmly, and the force gradually areased, according to the resistance. Two or three steady trials

from its situation in the first insta happens that in these cases of arres ment of the head is the cause of cannot alter.



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coarse napkin may be placed steady and powerful traction a screeps that he pain continues; and when it a strument is must be at once released, and r passing su when the same steady traction the nasal

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Fig. 76. Head in first pos metion. To over the ear on the pubic side of

+ Fig. 17. Relative position

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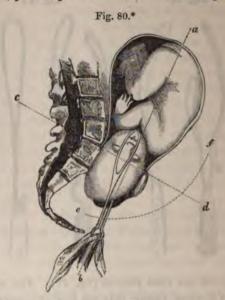


se (fig. 79). The majority of majority of majority one kind of forceps for these call the long forceps.

peration, the utmost care should had examination, lest you mistake prevents the head from descending. Inger illustration of this, than by astrumental delivery reported by Dr. 1823, I was present at the delivery who had been in labour nearly three the care of a midwife. It was the first

ps, with unequal blades.
orceps, with unequal blades. Handles short.

child. The orifice of the uterus was not fully dilated, and it very rigid; the vagina was swollen and tender; the abdomen tender and painful on pressure. Tongue loaded, urgent thirst, count ance flushed, pulse rapid and feeble. The labour-pains for



or twelve hours had been gradually becoming more feeble irregular. The head of the child was strongly compressed much swollen, and the greater part was above the brim of pelvis. An ear could not be felt, and the hollow of the sac was empty. It was determined, by the practitioner who charge of the case, to attempt to deliver with the long force and he observed, before proceeding to introduce the blades, it was a case in which the superiority of the long over the s forceps would be observed in a striking manner, and that in than a quarter of an hour the delivery would be safely and a completed, and the life of the child preserved. The blades of

<sup>\*</sup> Fig. 80. Application of Dr. Radford's forceps when the head is in the brim.

presers were, however, introduced with great difficulty, and still greater was experienced in getting them to lock. Strong traction was then made for several minutes, and the blades slipped off the head. This happened several times; but the attempt to deliver was not abandoned till the operator was exhausted with fatigue. The head was then perforated and extracted with the crochet. Violent inflammation and sloughing of the vagina followed; and, shout three weeks after delivery, it was ascertained that a large resion-vaginal fistula existed." (Clinical Midwifery, pp. 6, 7.)

Dr. Lee, on this case, observes, "This was the first time I ever my the forceps applied in actual practice; and I was struck with the tast difference which exists between the application of the freeps to the head of an artificial feetus put into a phantom, and the head of a living child. I was led to suspect what I now witnessed—that a dangerous degree of boldness and hardihood might readily be acquired by long practice upon a phantom, where this was not combined with attendance on cases of difficult about." (Op. cit. p. 7.)

We feel the strongest conviction of the truth of these sentiments; ad for this reason would urge upon you the importance of tody observing those every-day cases which present to you no deulties. It is only by educating your sense of touch so as to provide the relations between the head and the pelvis, that you a detect any deviation from their ordinary proportions, or can state accurately the amount of disproportion that exists. It by the same tact that you know with certainty the manner which the forceps is applied, or can judge of the propriety of supplication. It is only by such previous education you that can by to perform any instrumental delivery with success; and, enfore, the study of the presentations in these ordinary, but to often neglected, cases of natural labour, is a far safer mode of quiring skill in the application of the forceps, than practising a those clumsy imitations of Nature that are commonly emred, under the fanciful names of "phantom," "mannikin," illy," etc.

A very few observations only are required on those cases where position of the head in the pelvic cavity is altered.

When the Face is towards the Pubes, the ear can still be and therefore the forceps may be applied in the manner al described. In this case, it is still more necessary to dislock head, and to endeavour to rotate it into the correct position this cannot be done, the perinasum must be very carefully a from injury as the head is descending, because the pressur it is so great.

When the Face presents, a very careful and cautious nation should be made; it is probable that the face is a much swollen from previous pressure, and is therefore th easily irritated. It is essential to know whether the chin frontal bone lies on the pubic side of the pelvis. be passed along the plane of the ischium on the left sic suture of the forehead may be felt, perhaps the anterior nelle; if not, as they are withdrawn along the face, the ir. surface of the orbits and nose is felt, but not the mouth. will prove that the forehead is anterior; because, if the mo touched near the plane of the ischium, the chin must be same side. It is necessary to determine the position of the because of the rotation necessary when the forehead li wards. The forceps may be applied, one blade along th of the right ischium, the opposite in the usual manner ale lock of the first blade. When they are locked, the face : pushed back slightly; and, when it is pressed forwards pain, the rotation may be made, so that the chin will glide i on the right side from the sacral to the pubic side of the The forceps is seldom required when the chin is anterior; it be, the rotation is more easily effected.

The Os Uteri should be dilated. In our description of different operations, no allusion has been made to the or Its full dilatation is admitted by all practical writers to be tial to any such operation. The rule has, however, been recontroverted, and the introduction of the forceps besi dilatation of the os uteri advocated. It has been argue because the hand may be introduced to turn the child best dilatation of the uterus is completed, so may the forceps. necessary for us to point out to you the reasons for not

m. There is no analogy whatever between the gradual dilatation of the os uteri with the fingers and hand to turn the child, and the effort to force open the os uteri by the power of the forceps. The effect on the cervix and os uteri, when, the waters being discharged, the head of the child is brought down upon them, is well known; we have endeavoured to point out how and why the outeri may then become rigid. If the forceps be applied to the bead, and it be forcibly brought against the cervix, the latter will not vield; the irritation will increase the resistance, and the operation will fail, after having excited that inflammation which we were so anxious to avoid. In cases where the cervix is per-Setly yielding and dilatable, and which merely require time to effect the full dilatation, the forceps may be applied, and perhaps force open the os uteri without injury; the reverse, however, might happen, and no conscientious practitioner would feel justified in placing his patient in the slightest risk for so unnecessary an operation. Make it a rule, therefore, never to apply the forceps until the dilatation of the os uteri is completed.

We may conclude this subject in the words of Denman:—
"Before the completion of the first stage of labour—that is,
before the os uteri is completely dilated, and the membranes
broken — the use of the forceps can never come into contemplation, because the difficulties before occurring may depend
upon causes which do not require their use, or, if required, they
could not be applied with safety or propriety before those changes
were made."

## LECTURE XX.

OBSTETRIC OPERATIONS (continued.)

OFTERATIONS TO SAVE THE MOTHER ONLY.—Having described those operations which are calculated to preserve the lives of the mother and the child, we must now turn our attention to those which are intended to save the mother only.

Perforation. When the head is so impacted in the pelvic cavity that it would be too hazardous to her safety to attempt delivery by the forceps, the alternative that remains is to perforate the head, to remove as much of the brain as possible, and a extract the child by means of the crotchet or craniotomy-forceps. So serious an operation requires the most mature consideration, especially if the child be alive; but should the death of the child take place before symptoms of danger to your patient present themselves, the operation may be undertaken without hesitation, because it is one much less calculated to injure the soft parts of the mother than that with the forceps, and it is more easily performed.

If, then, there be the least suspicion that the case may terms nate in perforation, you cannot be too watchful in observing the symptoms. Your attention should be directed to two objects first, to control, as far as possible, the inflammation which may arise; and, secondly, to observe carefully the pulsations of the fætal heart. When you have heard them distinctly, have observe the variations in their character, and find that they have ceased the operation may then be performed. The greatest diffculty connected with this operation is the time for performing it This is especially the case when the child is alive, and symptomof inflammation are progressively advancing to a dangerous point Fortunately such cases are rare; but when they do occur, the practitioner is placed in a dilemma. He either destroys the childan expedient which he must have a natural repugnance to adopt or, if he attempt to deliver by instruments not destructive to it, he runs the risk of exposing the mother to the most serious dangers, without any certainty that he will succeed even in delivering the child, much less in saving its life. It is well, therefore, to consider the progress of such a case.

The head being tightly jammed in the pelvic cavity, a tumour is very rapidly formed on the presenting part. The vagina is hot swollen, painful, at first dry, but afterwards moistened with an acrid serous discharge. The urethra is compressed, and the urine retained. The uterus is contracted about the child in the intervals of the pains. If the feetal heart should cease, the child may be

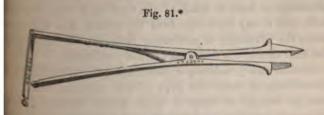
ed, and these symptoms subdued without injury to the es; but if the child be alive, there is still a hope, although ly a distant one, that it may advance when the head is ntly compressed by the pelvis, and the swelling of the es is diminished by the antiphlogistic measures adopted. not authorised, therefore, to open the head, until there is vidence of danger to our patient. It is here, then, that ifficulties begin. To pursue these symptoms: the inflam-, which had commenced in the vagina, extends to the and engages the constitution in an irritative fever. The of the uterus felt through the abdomen is not only hard, ry tender; the patient will not bear to have it touched. the pains return, her agony is extreme, but in the intervals no respite from suffering; she still complains of pain and s; the expression of her voice is altogether altered; the roan of the bearing pain is exchanged for a constant a yellow, oily, offensive discharge flows from the vagina. alse is febrile; the tongue furred; the countenance pallid xious; respiration laboured, and the stomach highly irrit-She constantly seeks for cold drinks, which are rejected as taken. The symptoms of exhaustion soon follow. The ges from the stomach are like coffee-grounds. The patient s extremely restless, tossing about the bed, and calling for idden chills on the surface alternate with clammy perspirathe temperature of the vagina diminishes; and the fæces charged involuntarily. Blowing, in the act of respiration; s of the vagina and extremities; and the gradual cessation pains, immediately precede the death of the patient. Such train of symptoms, which succeed each other more or idly, once inflammation commences. Whenever, thereese symptoms first shew themselves, and will not yield to nt, you cannot temporise; the child must be removed, even it be necessary to destroy it.

mer of performing Perforation when the Head is fixed in mor in the Cavity. The position of the patient is the sin the forceps operation. The preliminary measures to pted are similar, but much more attention is required, because it is so necessary to combat inflammation. We assume, therefore, that the rectum is empty, and that the with has been previously withdrawn from the bladder. It would right, however, to examine the bladder carefully above the public before operating; sometimes the neck and fundus of the bladder so compressed between the head and the os pubis, that a short catheter be used, the urine is removed from the segment only, while the principal portion remains above. We this is the case, the head should be pressed back as much possible, and a long gum-elastic catheter, of the size that upass the urethra, introduced; great care should be taken to use force in its passage, lest the instrument performance.

These essential points having been secured, two fingers of right hand should be passed to the most depending part of tumour that presents. The whole surface of the present should be carefully examined, in order to determine the of dilatation in the os uteri. If it be not fully dilated, should observe its exact relation to the tumour,\* and the dis of the edge of the os uteri from its centre; and if the os be very thin and closely embrace the tumour, you should rately define its margin, lest the degree of dilatation should a your notice. Having thus made a very cautious examin let the forefinger of the right hand remain applied to the of the presenting part, but rather to the pubic side, and with left hand introduce the perforator, having the point (white slightly curved) resting upon, and guarded by, the forest When both fingers meet, the right hand may be withdrawn the vagina, and the perforator forced through the tumour bone, at the part where the forefinger had been applied. stops arrest its further progress. The handles should the separated, in order to break open the cranium; but care

<sup>•</sup> This tumour, formed on the head by the pressure of the cervix of uterus, is different from that which afterwards takes place when the best in the cavity of the pelvis.

quired in doing so. The first two fingers of the left hand should that on the stops of the instrument, to prevent the perforator from the ping from the opening when the handles are raised, and to the the vagina from injury. With the common perforator, one had is generally held by the operator, while the opposite is used by an assistant; but if Naegele's perforator be used, an



stant is not required for this purpose. When the bone is Sciently broken in one direction, the handles may be changed the opposite, and a crucial opening made. The perforator ald be passed into the cranium, and the brain completely sten up. It may then be removed, but it would be advisable have the forefinger of the right hand still within the opening; muse it frequently happens that, when the pressure of the head is great, the bones so overlap each other that the opening is closed, which makes it difficult to introduce the crotchet. hitter step of the operation is often very troublesome, esally if the crotchet be properly curved, because the point of instrument is so directed that it is difficult to introduce In order to do so, the handle should be directed backtowards the coccyx, when, with a little careful manageat, it may be passed through, and the remainder of the brain As soon as this is accomplished, the handle of the thet should be held firmly in the right hand, while two or ingers of the left are applied to the bone externally, partly the purpose of protecting the vagina, if the crotchet should

<sup>\*</sup> Fig. 81. Naegele's Perforator.

perforate, but chiefly to prevent it from breaking throughous. Some caution also is required in extraction. The should be so applied that the bone may be held tightly be the flat part of the point and the fingers, without dire much on the point itself. In this manner you may proceed using more force in extracting than is actually require the point of the crotchet frequently slips from its place, is advantage to have as much of the bone below it as powereder that it may not escape from the opening into the hence the advantage of perforating rather on the public the head than at the lowest part of the presentation.

Cretchet and Craniotomy-Forceps compared. We have it necessary to detail the steps of this operation more cularly, because so much of your success depends u manner in which it is performed, and especially as re it there seems to be much misconception. This is evider construction of these instruments, some crotchets having t as straight as the handle, with the point sharp and spear-No doubt a crotchet of this kind could be fixed wit cranium without any difficulty, neither would there be t danger that it would slip from its position; but, as soon extracting force is applied, being directed completely point, there is great risk that it would break through th When the crotchet is properly curved, this is altogether because, while the point is sufficiently fixed in the craretain its hold, the principal force is employed in com the bone against the fingers. These disadvantages indu late Mr. Holmes and Dr. D. Davis to propose the cran forceps as a substitute—the revival of an instrument d in the early history of midwifery as the forceps. The crar forceps is formed of two blades or shafts, one of which h extremity a number of teeth, the other a corresponding of openings; so that, when the blades are applied toge teeth rest in these openings as in sockets. Sometimes t are separate, and may be united, like the forceps, by others are joined together by a hinge-joint. strong, and the extremity of the blade is smooth and

en the craniotomy-forceps is used, the blade which is dentl is introduced within the cranium, while the opposite blade mused outside; when they are closed, the teeth perforate the s, and are received by the openings mentioned, and thus the mum may be grasped firmly by the instrument. Extraction r then be made without difficulty, provided the bone does not The craniotomy-forceps may be very easily introduced applied to the head of the child; the teeth are guarded by construction of the instrument; and there are no other sharp to tear the vagina when applied, neither is there the same regement required in extracting as there is with the crotchet. advantages, therefore, seem to be such as to make it superthe use of the crotchet. Nevertheless, some of the most crienced practitioners dislike the instrument, because it is be to one great objection from which the crotchet is free. The • is so crushed by the craniotomy-forceps, that, when extion is made, just so much of the bone is torn away as was ken, and the head is left behind. This is especially the case m the child has been dead for some time, and putrescency Thus the presenting part of the head may be h up into fragments, without being disturbed from its posi-Left the instrument fail in its purpose, there is great diffi-





by in applying the crotchet afterwards, and there is some ger lest the spicula of bone broken by the forceps should tear passages: a lacerated wound of this kind may give rise to

<sup>\*</sup> Fig. 82. Craniotomy-forceps.

very serious inflammation, and therefore increase the haze the operation. To obviate this objection, some forceps are without teeth, having only a strongly serrated edge in the by which the bone is grasped, and prevented from sli There is less risk of breaking through the bone with an ment of this kind, and it is, therefore, less objectional still there is more danger of separating the parietal bone sutures than with the crotchet, if the resistance be great.

These observations on the comparative merits of the crott examintomy-forceps give you the result of our own experthe use of these instruments. The objections stated ha occurred to other practitioners, in whose judgment we l highest confidence, and therefore we feel the more cert their wuth. Nevertheless, we should not wish you to it the cranious y-forceps is either an useless instrument, or should be almogether discarded from practice. in many cases, and especially in those where the head ossified, it may be employed with great advantage, if car used, and the instrument be properly selected. conclude, from what has been said, that either instrum be employed usefully in cases especially fitted for its tion; but that, in the majority of instances in which diffithis kind require the aid of instrumental assistance, it is employ the crotchet.

Perforation when the Head is above the Brim of the In the description we have given of perforation, your has been directed to the operations when the head of the either entered or passed through the brim of the pelvis, then become impacted; but cases occasionally arise that much greater difficulties even than these. There are is where the head cannot enter the brim of the pelvis, in confits extreme deformity; and in determining the mod livery, we are again involved in a cloud of controversial through which it is difficult to find out the true course to The object of one of these questions is to determine the perforation; or, in other words, to decide what is the least space in the pelvis through which a child may be extra

the crotchet. Secondly, when, in cases of extreme disproportion, this seems hardly to be accomplished, and, at the same time, the attempt is extremely hazardous to the mother, the question arises, whether it should be at all attempted? When the result is so doubtful, so far as the safety of your patient is concerned, and the destruction of the child is certain, the Cæsarian section claims for itself the advantage that there is at least a chance of preserving the child, while the risk to the parent could hardly be prester.

We shall presently enter into the discussion of these questions. At present, it will be sufficient to point out to you the nature of them, and the different operations which have been suggested to meet the difficulty. The first question sprang up in the discusnion of a very remarkable case that occurred in the practice of Dr. Osborne-the case of Elizabeth Sherwood. Dr. Osborne states, that "she was so deformed both in her spine and lower extremities, as never to be able to stand erect for one minute without the assistance of a crutch under each arm." At the age of twenty-seven years, however, she became with child, and was admitted a patient into Store Street Hospital. A vaginal exammation was made, and "immediately upon the introduction of the finger, I" [Dr. Osborne] "perceived a tumour, equal in size, and not very unlike in feel, to a child's head. However, it was instantly discovered that this tumour was formed by the basis of the os sacrum, and last lumbar vertebra, which, projecting into the cavity at the brim, barely left room for one finger to pass between it and the symphysis pubis, so that the space from bone to bone at that part could not exceed three quarters of an inch. On the left side of the projection, quite to the ilium, which was about two inches and a half in length, the space was certainly not wider, and, indeed, by some of the gentlemen who examined her afterwards, it was thought to be rather narrower. On the right side, the aperture was somewhat more than two inches in length from the protuberance to the ilium, and, as it admitted the points of three fingers (lying over each other) in the widest part, it might, at the utmost, be about an inch and three quarters from the hind to the fore part, but it became gradually narrower, both towards





to extract the chil crotchet. "It was (he proceeds) " the operation, whi about eleven o' night: after place

the usual manner, close to the edge of the bed, on he as the situation most commodious both for the p myself. Even the first part of the operation, which in sufficiently easy, was attended with considerable diff some danger. The os uteri was but little dilated, and wardly situated in the centre and most contracted 1 brim of the pelvis. The child's head lay loose above and scarcely within reach of the finger, nor was there directly opposite to the os uteri. Having desired an a compress the abdomen with sufficient force . . . I them (the perforating scissors) with the utmost caution the os uteri, and, after repeated trials, at length su fixing the point into the sagittal suture near the posts nelle. I very soon, and with great facility, penetrate cavity of the head, destroyed the texture of the cerebr common spoon extracted a considerable quantity, and

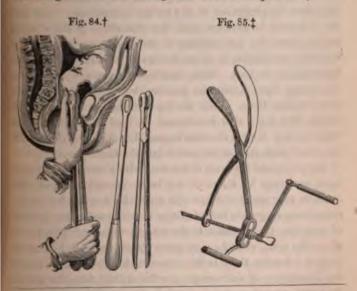
the first instance, to allow the uterus opportunity, by its continued contractions, to force the head as low and as much within reach of the crotchet as the nature of the case admitted, and afterwards to induce as great a degree of putrefaction as possible in the child's body, by which means it would become soft and compossible, and afford the least possible resistance in its extraction . . . I immediately determined to begin to make an attempt b extract the child. I call it an attempt, for I was far from being wished in my own mind of the practicability. . . The os uteri leing situated as before described, in the most contracted part of the brim of the pelvis, where the space was incapable of permitting the introduction of the curved point of the crotchet, without meat difficulty and danger, my first endeavours were bent to draw the os uteri with my finger into the widest part of the brim of the pelvis, and to dilate it as much as possible. Both the removal of the os uteri, and such dilatation of it as the bones admitted, were effected without much trouble. I then introduced the cotchet through the perforation into the head, and by repeated efforts, made in the slowest and most cautious manner, destroyed almost the whole of the parietal and frontal bones, or the whole upper or presenting part of the head: and as the bones became losse and detached, they were extracted with a pair of small forceps, to prevent, as much as possible, laceration of the vagina in their passage through it. The great bulk of the head formed by the base of the skull, still, however, remained above the brim of the pelvis; and from the manner in which it lay, it was impospossible to enter without either diminishing the volume, or thanging the position: the former was the most obvious method, for it was a continuation of the same process, and, I trusted, would be equally easy in execution. I was, however, egregiously mistaken and disappointed, being repeatedly foiled in every endeayour to break the solid bones which form the basis of the cranium, the instrument at first invariably slipping as often and as soon as it was fixed, or at least before I could exert sufficient force to break the bone. At last, however, by changing the position of the instrument, and applying the convex side to the pubis, I fixed the point, I believe, into the great foramen, and by that means became master

of the most powerful purchase that the nature of the case admitted. Of this I availed myself to the utmost extent, slowly, gradually, but steadily increasing my force till it arrived to that degree of violence which nothing could justify but the extreme necessity of the case, and the absolute inability, in repeated trials, of succeeding by gentler means. But even this force was to no purpose, for I could not perceive that I had made any impression on that solid bone, or that it had been the least advanced by all my exertions. I became fearful of renewing the same force in the same way, and therefore abandoned altogether the first idea of breaking the basis of the cranium, and determined to try the second by endeavouring to change the position. . . . I therefore again introduced the crotchet in the same manner, and, fixing it in the great foramen, got possession of my former purchase; then, introducing two fingers of the left hand, I endesvoured with them to raise one side of the fore part of the head. and turn it a little edgeways. Immediately and easily succeeding in this attempt, the two great objects were at once accomplished, for the position was changed, and the volume diminished. Continuing my exertions with the crotchet, I soon perceived the head advance, and, examining again, found a considerable portion of it had been brought into the pelvis. Every difficulty was now removed, and by a perseverance in the same means for a short time, the remaining part of the head was brought down, and out of the os externum." (Op. cit. pp. 247-55.)

We have detailed this case to you more at length, because it accurately describes an operation with the crotchet, different from what we have described—one by which the vault of the cranium is quite broken up and removed, and the base of the skull is drawn obliquely through the contracted brim of the pelvis, the crotchet being fixed in the foramen magnum. It is also remarkable—we might say singular—in the fact, that a child could by any means be drawn through a pelvis so extremely distorted as to have the antero-posterior measurement reduced to three-quarters of an inch; and perhaps the most astonishing fact connected with the case was, that the woman recovered without a bad symptom, and sat up in seven days after the operation. It is not sur-

rising, therefore, that a warm controversy should have arisen; the alvocates of the Cæsarian section condemning the attempt, and protesting against such a case being made a precedent for future entchet operations; while the supporters of craniotomy claimed the case as a valuable proof of the superiority of perforation to hysterotomy, which latter was generally fatal to the parturient roman.

Other Instruments for Perforation. Dr. D. Davis contrived intruments to meet the difficulty of these cases. One was the electromist, a strong bone-forceps, intended to cut completely away the bones which form the vault, so as to leave the base of the cranium. Dr. Davis stated that this also may be broken and removed by the instrument, so as to prevent the necessity for that tielent exertion to which Dr. Osborne was obliged to have recourse in drawing the cranium through the brim of the pelvis.\*



- Dr. Campbell has invented an instrument—the kephalepsalis—for a similar purpose to Dr. Davis's osleotomist.
  - + Fig. 84. Dr. Davis's osteotomist.
  - Fig. 85. Baudelocque's cephalotribe.

M. Baudelocque, jun., also invented an instrument to break up the head, not by cutting it away, but by crushing it together. The cephalotribe consists of two very strong blades, rough on the inside, and having handles through which a screw passes. The handles are brought forcibly together by turning the screw, and the blades, by the same power, crush the bones that lie between them (fig. 85.)

Both these operations are intended to supersede the Casarian section, and both are liable to the same objection-viz., the extreme difficulty of using them in those cases where they are chiefly required, as well as the danger to which the passages would be exposed in such an operation, especially with the cephalotribe. In moderate distortions, where the crotchet or craniotomy-forceps may be used, the osteotomist and cephalotribe are unnecessary. because they possess no advantages which would lead us to employ them in preference to the former instruments. But when the distortion is extreme, and the alternative is the Cæsarian section, from the impossibility of delivery by the crotchet, they would be invaluable, if, as Dr. Davis expected, they could reduce hysterotomy to zero. Both instruments are new, and future experience must decide the question, but prima facie evidence seems against them. Look at the cephalotribe, and ask yourselves, How could that instrument be used in Elizabeth Sherwood's case? To me it seems impossible. Again, with regard to the osteotomist, it must be passed into the uterus, above the brim of the pelvis, and that part of the head within reach of the instrument cut away by it, until the bones are all removed. We question very much whether this could be done under the circumstances supposed; but admitting it to be possible, the difficulty of applying the crotchet to the broken cranium, lying loosely above the brim, must be very great. And if we fail, how are we to act? Are we, then, to have recourse to the Casarian section, for the purpose of delivering a mutilated child from the uterus? It is true, we are assuming a maladroit performance of the operation, which might arise from want of skill. It is right, however, to do so, and to consider the alternative in cases of failure, if we would properly appreciate the value of the improvement. This objection will, perhaps, appear with more force, from the caution used by Dr. Osborne to avoid such a difficulty in his operation. He first perforated the head, and then allowed his patient to remain thirty-six hours in strong labour, in order that some part of the head (then a putrid mass) might be driven into the brim of the pelvis. He preferred leaving the patient so long in labour, under such unfavourable circumstances, rather than operate while the head was yet above the brim of the pelvis. For these reasons we very much doubt whether the sanguine expectations of Dr. Davis will ever be realised.

OPERATIONS TO SAVE THE CHILD.—Long before the instruments which have been just described were invented, an operation was proposed, to supersede the Cæsarian section, which at first was then the same success, received the approval and honours of the Academy of Medicine, Paris, excited the warmest enthusiasm in its favour, and has now become only a part of obstetric history. Signault and Le Roy proposed to divide the symphysis pubis, and thus to force open the contracted brim. It is sufficient to say, that this operation failed in its object, and proved to be so dangerous to the patient, that it has been discarded from practice; we shall not, therefore, dwell upon it, but proceed to the Cæsarian section itself.

Casaman Section.—This operation is based upon the third principle we have stated to you—viz., when from the circumtures of the case, the safety of the mother seems to be more than doubtful, if not hopeless, the child must, if possible, be saved. The Casarian section is therefore indicated in these extreme case. In the case of Elizabeth Sherwood, although the crotchet succeeded, its success was the wonder of the professional world, and of none more than Dr. Osborne himself. It cannot, therefore, be taken as a rule to guide your practice. In order to decide upon the Casarian section, you should weigh carefully the probable result to the mother if the operation be not performed; and if it appear to you that perforation is impracticable, or so difficult to perform that the danger seems to be nearly as great to the patient as that of opening the uterus, you are then authorised to undertake this operation; because, if there be a probability that

foration will not ensure safety to the mother, you are certainly bound to consider the child, and give it a reasonable chance for its life.

In so difficult a question, and one that has been so warmly contested, facts are better than arguments. Some years ago we were requested by Mr. Codd of Rickmansworth to see a cas of difficult labour, arising from distortion of the pelvis. The woman was not more than four feet three inches in height. twenty-three years of age, and born of diminutive parents. She was taken in labour, March 8, 1847; the water broke in six hours, and the pains ceased after twelve hours; they then returned, and continued for forty-eight hours, before we saw her. She was in active labour, her spirits good, and her pulse tranquil Two fingers were easily introduced into the pelvic cavity; they at once came into contact with the sacrum, projecting so strongly forward that it had been mistaken for the head of the child; the conjugate measurement was ascertained to be an inch and a half. Had this patient been in London, the Cæsarian section would have been performed; but in Rickmansworth, in a confined apartment, with every disadvantage that poverty could present, it was out of the question. The attempt must be made to drag the mutilated child through a space that an apple would not pass. The head was perforated, and the crotchet with great difficulty applied; three hours were occupied without causing the least advance of the head, although the cranium was very much broken up. Further efforts were discontinued that night, and resumed the following morning. It was still more difficult to apply the crotchet, and several varieties of craniotomy-forceps were tried, but found unmanageable in so confined a space. The crotchet was resumed, and we succeeded in forcing it through the orbital plate of the frontal bone; a firm hold was thus obtained Extractive force was gradually increased to the very utmost, but without success. At length the bone separated at the frontal suture, and came away. Two hours were thus spent to no purpose; the woman was exhausted, so a full anodyne was given, and she was left for a few hours. On our return, we found the fragments of the cranium pressed further into the brim, so that

were able to get the crotchet hooked on the neck, and thus delivered the head; the shoulders were extracted with great difficulty, and the child removed. This woman sank in about a week afterwards. The post mortem examination gave no satisfactory explanation of the cause of death; there was no trace of peritonitis; her death can only be attributed to exhaustion. The pelvis was exactly one and a half inch in the conjugate was, and four and a half inches in the transverse measurement.

This case may be contrasted with one reported by Mr. James Hawkins of Newport, in which the Cæsarian section was performed. Mr. Hawkins's patient was nearly of the same age and height, four feet one inch; the pelvis was ascertained to be an inch and three quarters in the conjugate axis. Labour commenced Feb. 17, 1858; and on the 19th, it was agreed by Messrs. Brewer, Woollett and Hawkins, that the Cæsarian section was the most feasible, and the only operation by which the life of the child could be preserved, and under the circumstances the most favourable to ensure the life of the mother. The operation was performed; the child was saved; the mother recovered; and both mother and child—"a fine little baby"—were frequently to be seen by Mr. Hawkins afterwards (Med. Times and Gazette, vol. xxxvii. 19, 488, 489.)

Thus in these cases, as nearly similar as possible, craniotomy, a most difficult and wearisome operation, scarcely succeeded in ingging a mutilated child through the narrow pelvis, and without saving the parent. The Cæsarian section accomplished both. A most interesting case is related in the American Journal of Medical Sciences (vol. xvi. p. 20) in which Dr. Meigs perfermed craniotomy, and had to contend with even greater difficulties than in the preceding case. Using his utmost skill and most powerful efforts, and returning at intervals, he failed to remove the head until thirty-three hours after it was opened. This woman fortunately recovered, and, becoming again pregnant, was delivered twice by the Cæsarian section. Mr. Gibson of Philadelphia performed the operation in 1834 and 1837, and in both instances with success, the mother and children being saved. The conjugate measurement of the pelvis was under two inches.

Such facts as these are sufficient to negative the statementhat the Cæsarian section is of necessity an operation fatal to the mother, and to prove that the risk of craniotomy is quite as great in such cases. They establish, it appears to us, the rule that, in the ovate deformity of the pelvis, if the conjugate axis be less than two inches, craniotomy should not be attempted, but an effort made by the Cæsarian section to save the child.

The cordiform pelvis, if caused by rickets, is generally only slightly deformed, just sufficiently to arrest or impact the head which in either case may be delivered by the forceps; but when it is the result of mollities ossium, the deformity is extreme, and is caused by a disease which runs a much more rapid and destructive course. The history of a case will best explain its characters. Dr. Fraser, of Harrington Square, once sent for w (July 11, 1858) to see a patient of his in severe labour. She had been married sixteen years, and had given birth to seven children all born at the full time, without any unusual difficulty. Three or four months previously to the birth of her last child (May 26, 1856) she complained of constant weariness, and dull aching pain in the lower part of the back and down the thighs, increase on walking. She continued to go about, however, up to within an hour or two of her confinement, which was quite natural, and terminated in less than two hours.

In Oct. 1857, she became again pregnant; after which the pain and difficulty in walking, which she previously felt, returned with increased force, so that ultimately (January 1, 1858) the was not able to leave her home. Dr. Fraser saw her in April sitting at her work-table, where she remained all day until site was moved to her bedroom. Her labour commenced July 10, 1858; but, contrary to the usual course, no advance whatever was made for twelve hours. Dr. Fraser, on making an examination found the pelvis contracted; and, as the pains were then feeble, he gave an anodyne in the hope that they might become stronger after his patient had rest. On July 11, there being no alteration our aid was requested. We found it impossible to get two finger between the public rami; but, using the left hand and pressing strongly against the coccyx, we were able, by bending them so as the strongly against the coccyx, we were able, by bending them so as the strongly against the coccyx.

he projecting promontory of the sacrum to introduce two within the brim of the pelvis. On passing the finger round im, the space seemed to be hardly larger than a florin. ature of the difficulty being thus revealed, no other on than the Cæsarian seemed practicable, and for this e she was taken into University College Hospital. The on was very skilfully performed by Mr. Quain, and a dead removed. In the first two days after the operation the ms were favourable; but on the 13th she complained of se and pain in her bowels, vomiting set in, followed by the restlessness, and she sank the following day.

he post mortem examination the pelvis was found to be throughout; all the articulations were loose, and the pubic hiatic portions of the coxal bones moved on each other. iac bones were much distorted and carious, portions being as paper, and some parts perforated. The horizontal rami pubic bones were parallel; the pectineal eminence on the



Fig. 86.\*

\* Fig. 86. Pelvis distorted by mollities ossium.

left side almost touching the promontory of the sacrum. The spa measured was half-an-inch, but the bones were easily press together, and very likely were so when the patient was lying a her left side. The descending rami of the pubic bones were close in and carious; the acetabula were eaten through, and the brittle ness of the bones such that it was impossible to take a cast in plaster of Paris.

The transverse measurement was 3.4 inches; between the promontory and pectineal eminence on the right side, 2.2 inches; me the left side 0.7 inch. The horizontal rami of the pubic bone were parallel, distant from each other 0.8 inch: the descending rami were 1.1 inch apart. The space between the ischiate tubera was 2.5 inches.

This case is interesting, both as an example of the disease mollities ossium, and as it bears on the question before us. Some of the symptoms of the disease shewed themselves in the previous pregnancy; but no effect was produced on the pelvis. The paties was delivered in two hours of a full-grown child. In her las pregnancy, such was the rapidity of its progress that at the end of the first three months she could not leave the house, could not move but was obliged to remain in a chair all day; and, when labour set in, the pelvis was in the condition we have described. If the attempt had been made to perforate the head and remove the child by the crotchet or any of the instruments proposed for the purpose (supposing this possible, which is very doubtful), the bones of the pelvis would have been separated. The operation could no secure the safety of the patient: hence it was, and in any similar case would be, the duty of the practitioner to attempt the safety of the child. To sacrifice its life for so doubtful a chance would be inexcusable. This case therefore seems to prove the third rule we have stated (p. 300), when the life of the mother cannot be insured, "to save the child if possible." These cases of mollities ossium have become a kind of opprobium on British Midwifery. Some women have been left eight, ten, and eleven days in labour, to die undelivered (Hamilton's Outlines of Midwifery, 4th. Ed. Hull's Defence, p. 221, 222). Craniotomy has been tried with others; a mutilated child has been dragged with nse difficulty through the pelvis, but the woman has died of red uterus (Lee's Clin. Med. pp. 74, 78). And lastly, the ian section has been performed too late: the woman has left amid doubts and hesitations until she was dying—and he attempt has been made to save the child.

ve be agreed as to the propriety of the Cæsarian section in cases, every means should be used to secure the life of the er, if possible. Her constitution is diseased and easily exed; she should therefore not be exposed to protracted and suffering; means should be used to counteract the deive effects of the disease itself, and her strength as far as she maintained. The operation may be performed under form, and the exhausting effects of pain removed. For that it is possible by skilful management to save the mother, sed only refer to the cases of Mr. Knowles (1827), Mr. es (1833), Mr. Goodman (1843), Dr. Radford (1849), Thornton (1856). (See Appendix).

nours and other Morbid Growths sometimes so occupy the

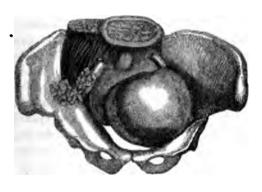


Fig. 87. \*

ig. 87. Dr. Shekleton says "On examination, the tumour, large and ding, was found to occupy the whole cavity of the pelvis, with the ion of the space immediately behind the pubis, which barely admitted sage of one finger between it and the tumour." (Dub'in Quarterly 21, vol. x. p. 287).

cavity of the pelvis as to obstruct completely the passay head. We have already alluded (p. 297), to the instance by Dr. Beatty, in which a large fibrous tumour fortun pushed out of the pelvis by the descending child; but are rare exceptions. Dr. Shekleton reports a case we curred in the Dublin Lying-in Hospital, where a we occupied the pelvis, that an anxious consultation whether the Casarian section should be performed. decided unfortunately against it; and Dr. Shekleton has the attempt to extract the child piecemeal "through which scarcely admitted the passage of the finger." After immense difficulties which Dr. Shekleton most go describes, he succeeded in the delivery—but the patient of minutes afterwards of ruptured uterus.

This case may be contrasted with one related by Dr. W: Thomas's, in which the Cæsarian section was performe 1853), in consequence of a pedunculated fibrous tum completely occupied the pelvis. The child was save woman sank after forty-eight hours, apparently from e She had bronchitis previously to the operation (Medical Gazette, vol. xxvii., p. 266). Dr. Oldham reports a cas Mr. Poland performed the Cæsarian section in consequ scirrhous mass having completely occupied the pelv (Lancet, vol. ii. 1851, p. 226). Both mother and child w Mr. Edmunds relates a case in which the cervix ut to be converted into an immense cancerous mass: me child were here also saved. (Med. Times and Gazette, vo pp. 9, 10). In such cases as these, much depends upon the of the tumour, its mobility or immobility, and the cons the patient. If she be otherwise healthy, if the tumour be able and the space so diminished that craniotomy i difficult and dangerous operation, the Cæsarian section be at once adopted; and if it be performed promptly every probability that, as in Mr. Poland's and Mr. I cases, both lives will be saved.

We therefore think this operation justifiable—

- 1. In the ovate deformity of the pelvis, when the conjugate axis
- 2. In the cordiform distortion from mollities ossium, when the startion is extreme, and craniotomy is either impracticable or so small that the safety of the mother cannot be secured.
- 3. When tumours are immoveable, and so occupy the pelvic wity as to leave a space of only two inches between the tumour and the pelvis.

Statistics have been conveniently employed in this as in other stances to furnish arguments against the operation. The mistical results of craniotomy have been contrasted with those Whe Casarian section, to prove the much greater mortality to the auther in the latter operation. The mortality from the Cæsarian tion it is said, is 86 per cent. while that from craniotomy is 20 ment.; or, in other words, while by the latter operation only one hafve is lost, by the former only one in five is saved. No exparison of this kind can be fairly made between these operabus; because on the one side the danger to the mother from strotomy is uniform, always present, while that from craniotomy the precisely as the degree of disproportion for which the pration is performed. No operation is easier to perform, or for the mother than craniotomy, when the contraction the pelvis is not great; but if the disproportion be extreme, is so difficult and dangerous. It is only in the latter des of cases that the Cæsarian section and craniotomy can byjustly compared; but both classes are included in statistical wes, and therefore the conclusion derived from them is false. to much caution cannot be used in drawing conclusions from Mistics, as will be obvious in this question from the tables before you (see Appendix.) In the continental and American betice, the maternal mortality is about one in three. In the bitish, it is more than four in five. Very little confidence can be laced in any conclusions derived from these figures; it is better beek to determine this very difficult question by comparing with case. A comparison of the facts and results of the sparate histories will lead us much nearer the truth than any edistics. An eminent statesman once said "Nothing so bad a false facts - except false figures."

Previously to operating, the rectum and t must be carefully emptied; the position of the placeau be ascertained with the stethoscope, and the exact direct the uterus observed. If it project forwards nearly in the line of the body, and the placents be in its usual position back of the uterus, an incision may be made through th alba for about seven inches, commencing about the umbili terminating about two inches above the pubes; the uterus exposed, and the peritoneum along with it. An assistant press with both hands firmly on the uterus at each side wound, while the uterus is being divided. This must be cautious incisions, in the direction of the internal wour the membranes are seen. These should be raised, and opening made in them to allow the liquor amnii to escap nally; the whole fluid may be removed by successive app of sponges to the opening. The membranes should then be on a director the whole length of the wound; and, whil being done, a second assistant should be prepared to gr remove the child, while the first maintains pressure on t tracting uterus, to prevent, as much as possible, protrusi intestines or exposure of the peritoneum. The placents t be easily removed, the intestines replaced (they always p and the wound united by several sutures; water-dressi broad bandage may be applied over the whole.

Lauvergat advised us to puncture the membranes prev the operation, and this plan has certainly many advanta placenta can be heard much more distinctly; the size of this is reduced, and the calibre of its vessels diminished; the of hemorrhage may thus be lessened, and the externa need not be so large. The peritoneum, also, is less like exposed when the uterus contracts after the child is rem

The dangers you have to apprehend from this operation

- The shock to the constitution, under which the pat sink;
  - 2. The hæmorrhage which may result from the operat
- The inflammation of the peritoneum, in consequen sac being opened.

The subsequent treatment we shall consider, under these diflent heads, in another part of the course.

The Induction of Premature Labour, or Abortion, is intaided to supersede these dreadful operations.

The Induction of Premature Labour applies to cases in which, the child having been in previous labours destroyed by cranimy, it seems possible to save it by inducing labour at the menth month. If, for instance, the conjugate measurement of the pelvis be three inches, the safety of the child is extremely mobiful at the ninth month, and the labour is too often terminated by perforation; but if labour be brought on at the seventh month, when the child is smaller, there is a reasonable chance that it may be extracted living. Hence the induction of prematal labour applies to cases where the child might be saved.

laduction of Abortion is applicable to those cases only in which contraction of the pelvis is so great, that the Cæsarian section be necessary if the woman arrived at the full term of gest-A moral prejudice, in consequence of its shameful abuse, long existed against this operation; and hence it is only lately at it has received the serious attention of the profession. Its and importance is now admitted in those difficult and manageable cases; and the only question remaining is, How an should it be performed on the same patient? Dr. Radford justly protests against sacrificing infant life in such cases, some but several times. When the woman is aware of her action, is cautioned against intercourse, and, still giving way a sensual passion, seeks relief by abortion, the crime is not by different from that of the once respectable but unfortunate from of seduction, and is perhaps less excusable. The latter thus to hide her shame. The former has no shame to

The Mode of Exciting the Action of the Uterus varies. Some sthods are directed to the uterus alone; as for instance, ergot of p, as proposed by Dr. Ramsbotham. This is given in large and ently repeated doses, until the action of the uterus is estab-

d. In the cases where we have tried this means, we were equally successful with Dr. Ramsbotham; besides, even from

his reports, the child's safety seems not to be well secured. The destructive effect of ergot of rye on the child, when largely given, is now an established fact. The introduction of sponge-tents within the os uteri, as proposed by Brünninghausen and Kluge, is more successful. When the tents are introduced, they are retained in their position by a plug in the vagina. Tents gradually increasing in size may be introduced from time to time; and, as the os uteri expands, the action of the uterus is excited. The use of the sponge and ergot of rye have been combined with great advantage; the action is sooner induced, and less ergot is required.

Some modes are based on the principle that, if the connection between the uterus and ovum be disturbed or broken, the ovum becomes, as it were, a foreign body, and is expelled.

Puncturing the membranes was the earliest practice adopted on this principle. It applies especially to the induction of premature labour at the seventh month, and in such cases is very efficient and seldom fails in its effect. For this purpose an instrument, like a catheter, contains a pointed stilette. It is passed within the os uteri as far as the presenting part, and the stilette is then pressed cautiously forward. The action of the uterus commences some hours after the waters are discharged. This method is not so applicable to the induction of abortion, which formerly was never thought of, because the passage of the stilette within the uterus is more difficult and attended with greater risk.

Separating the membranes from the uterus is also successfully practised. The sound may be passed within the uterus, and moved cautiously round, detaching the membranes a few inches from the os uteri; the membranes may be ruptured, but this accident only renders the effect more certain. Professor Bram, of Vienna, introduces a catgut bougie high up within the uterus, and leaves it there until the action of the uterus is excited and the waters escape. (Med. Times & Gazette, June 11, 1859, p. 606.)

A far more efficient means for accomplishing this purpose is that proposed by M. Kiwisch, of Prague. He places warm water about ten feet high, and from the vessel containing it a long escends, the pipe of which is passed within the vagina; the ream of water is then allowed to play on the os uteri, by the action of the uterus is excited. A simpler and more t means of carrying out this practice is—

injection of warm water within the uterus by means of a It is necessary that the stream be continuous, and e Kennedy's or Higginson's syringe must be used. When is inserted within the cervix, any quantity of water may y forced up; and, if the pipe be kept in its place, the water return until the uterus is very fully distended. When the withdrawn, the water is expelled with force, and somee expulsive action returns soon, and continues until the expelled. More usually it is necessary to repeat the n two or three times to produce the effect, and in some s the alternation of cold and warm water has been tried the tardy uterus. This method detaches the ovum far ficiently from the uterus than any separation which a a catheter can effect, and, by distending the walls of the excites its action. The objection which naturally suggests this method is the risk of hæmorrhage. We have tried it fect success in inducing premature labour without the morrhage, but it would be very difficult for abortion place without hæmorrhage; we must only therefore gainst its effect on the patient, and as far as possible t. Tincture of opium with the liquor secalis in wine given to the patient, and the vagina plugged moderately water has been expelled.

## LECTURE XXI.

OBSTETRIC INSTRUMENTS.

e details of those instrumental deliveries, we would now tention to the instruments themselves, in order to point alterations and improvements which have been made in First, we shall speak of the—

VECTIS AND FORCEPS .- Previously to the introduction of of these instruments, the state of midwifery was such, that sufficient that a labour was difficult, to assume the death child. No other operation was known or practised than p tion; and when a midwife (the accoucheur of that day) for assistance, it was generally because the patient was in of her life. The medical man who undertook the opera delivering the child, did so under the most unfavourable c stances: the child must be destroyed, and perhaps the was not saved by the operation. It is not surprising, the that the obstetrician (or man-midwife, as he was called) have held a very humble rank amongst his professional bro like the plague, destruction seemed to follow in his path consequently, he was an object rather to be shunned than after. Operative midwifery was in this condition, when, seventeenth century, two practitioners, one in Holland, th in this country, contrived instruments by which deliver be accomplished, and the child's life, at the same time, pre One of those inventors was Roonhuysen, a Dutch practition invented the vectis; the other, Dr. Paul Chamberlen, the ir of the forceps. The introduction of steam did not pro greater revolution in the commercial world, than did th struments in obstetric practice. Deliveries were effected that before would have been despaired of; and, not unli illustration, with a great economy of time. The reputa both men soon rose to the highest pitch; but, I regret they did not elevate their profession to the same Governed by mercenary motives, the invention was kept by both, and all the aid that mystery could give was en to magnify its importance. It served the intended purpos practice of both increased to the fullest extent, and consecutive the number of patients delivered by these instruments w siderable. De Bruyn, one of Roonhuysen's pupils, admits delivered eight hundred women with the vectis; and fro you may form an estimate of the general number of oper In fact, the practice of midwifery assumed a new cha formerly, parturition was left to the efforts of natur ften far beyond what prudence would dictate. If she and the patient were in danger of sinking under the ent efforts of the uterus, the child was dragged away by and crotchets, in whatever way the practitioner could best lish it. Now, the principle was changed; art pushed aside; delivery became a question of mechanical skill; and, e times, the principal merit of Roonhuysen and Chamberlen at by their invention they could not only deliver a woman the natural efforts failed to do so, but also they could effect ivery in a much shorter time than nature could generally lish, even where assistance was not so obviously required. gh Chamberlen boasted, that "by the manual operation" (in the least difficulty) wer pains and sooner"-than nature could-"to the great ige, and without danger, both of woman and child" hill's Midwifery, 4th ed., p. 334). These secret means of ing women were sold from one to another, like patent meuntil at length the secret made its way into the

is. We have stated that Roonhuysen invented the vectis, of which he taught to his son Roger, to Ruysch, and to man. They instructed De Bruyn; and at length, after the had passed through three generations, two Dutch practs, Jacob de Visscher, and Hugo Van de Poll, influenced true spirit of science and philanthropy, purchased the from De Bruyn's daughter for 5000 livres, and at once t known to the world. "Roonhuysen's lever consisted of fiece of iron bent into a slight curve at both ends, and he lly employed it covered with soft leather."



\* Fig. 88. Roonhuysen's vectis.

This simple contrivance was soon improved upon on tinent by Titsing, Morand, and Herbiniaux. Dr. Denm " that when the vectis was first known in this country [E that described by Heister was preferred to those recomm the surgeons of Amsterdam. The vectis used by Dr. like one blade of the forceps, somewhat lengthened and That of Dr. Griffith was of the same kind, with a hinge the handle and the blade; and that of Dr. Wathen was I Palfyn's, but with a flat handle, and a hook at the ext the handle, which prevented its slipping through the l might be occasionally used as a crotchet. Many other have been made in the construction of the instrument vectis now generally used is of the following dimension whole length of the instrument before it is curved is 12 the length of the blade before it is curved, 71 inches; t of the blade when curved, 61 inches; the widest part of is 12 inch. The weight of the vectis is 61 ounces. T is fixed in wood" (Denman's Introduction, p. 286). I who was, equally with Denman, an advocate for the ve an instrument much straighter, and one which could n ployed otherwise than as a lever. Dr. Bland's vectis advantage of facility in the introduction; Denman's of in its purchase on the head. Dr. Aitken, of Edinburgh, combine both advantages, and invented what he c living lever, from its motion resembling that of tl A screw was fixed in the handle, by turning wh blade might be curved to any extent. This instrur fell out of use; the mechanism was not sufficiently stror the blade curved when any force was employed in e: Lowder's vectis is made with a hinge-joint between the the handle; it can thus be carried very convenientlynately too conveniently—in the pocket; there is, therefor temptation to misapply the instrument. It had been general use when Mr. Gaitskill introduced an improv He says: "The vectis should be thirteen inches long; or form the handle, the other the curve. The handle s made of hard wood, rendered rough, for the purpose of

hold, and made to screw on and off. When the instrument with a hinge-handle it is very difficult to introduce, thereconstruction of the instrument should never be adopted."

Medical Repository, pp. 823, 80, 81).

Fig. 89.\*



Fig. 90.†



ne variety of these instruments you will observe a striking nee in their curvature. Some are nearly straight, like 19sen and Bland's; others, like Lowder's, are very much. The principle of the former is the lever; of the latter, ctor. The mode in which Gaitskill applied the vectis has ready explained; and the instrument, in its construction, ted to his manner of using it; but it cannot be so conveemployed in the way we have recommended. The curve blade is too abrupt, and the blade itself rather too wide, to nee conveniently on the pubic side of the pelvis. If the are were less and the blade narrower, it would be more e for the purpose indicated.

Forceps was invented by Dr. Paul Chamberlen, somewhere the year 1650 (the exact date is uncertain); it was kept a from all, except his sons Peter and Hugh, for more than rears; and at length, in the year 1716, its principle trans-

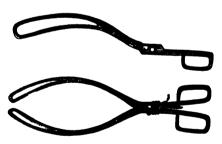
<sup>\*</sup> Fig. 89. Lowder's vectis, with hinge handle.

<sup>†</sup> Fig. 90. Gaitskill's vectis (handle screwed on).

pired through some channels that have not been corr tained.

We have already stated the boast of Dr. Hugh ( that "by God's blessing and their own industry, brother, and himself, had attained to, and long practise deliver a woman in this case, without any prejudice to their infants." Their success had led Dr. Hugh Cha calculate rather too confidently on the powers of the i he seemed to think it omnipotent. In the year 1670, Paris for the purpose of selling his secret, and, offered it for 10,000 crowns to the first physician of I It was necessary, however, to determine its value; and deformed pelvis soon afterwards presented itself to I The woman had been altogether eight days in labour; o day the os uteri was fully dilated, but the narrowne pelvis was such, that the head could not advance. Maur again sent for at the end of three days more, and "decla the assistants that the delivery could not be effected; (says Mauriceau) "they being fully persuaded, urged me the child from the belly by the Cæsarian operation, would not undertake, knowing well that it is always very c mortal to the mother. But after I had left the woman, being able to afford her relief, there arrived, unexpecte English physician named Chamberlen, who was then it and who, from father to son, practised midwifery in I where he has since acquired the highest reputation in t This physician, seeing the woman in the condition I ha scribed, expressed his astonishment that I, whom he prom and affirmed to be the most dexterous accoucheur in Paris, not deliver her, and promised that he would do so in les half a quarter of an hour, whatever difficulty he might encounte accordingly went to work, and laboured upwards of three without stopping to take breath; and then, being thorough hausted, and seeing the poor woman almost dead, he was pelled to abandon the case, and avow the delivery could no effected, as I had declared. The woman died, undelivered, two four hours after; and I found, on opening the body, which I dine's description of these instruments is as follows:-"F have a simple vectis with an open fenestrum; then we have idea of uniting two of these instruments by a joint, which each blade seem as a fulcrum to the other, instead of m fulcrum of the soft parts of the mother; and which also a power of drawing the head forward. The idea is, at it a pivot, which, being riveted, makes the instrument totally pable of application. Then he goes to work again, and made a notch in each vectis for a joint, he fixes a pivoti only, which, projecting, is to be received into a corresp hole in the other blade, after they have been applied seps It may be observed, that although there is a worm in the jecting part of the pivot, yet there is no corresponding! screw in the hole to receive it. Every practical accouche know that it is not easy, nor always possible, to lock the je the forceps with such accuracy as to bring this pivot ax into opposite contact. This Chamberlen soon discovere next produced a more light and manageable instrument,

Fig. 91.\*



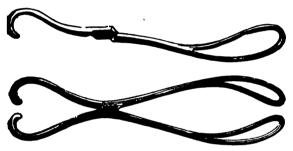
handered of uniting by a pivot, he passes a tape through the hand winds it round the joint, which method combine through the meturacy of contact, security, and mobility." (Med. 1998, 1944, ix. p. 183.)

The instruments here described were altogether different

<sup>•</sup> Phy #1. The most approved of four instruments made by Chamics in the swipting.

ar 1730. Chapman was the second practitioner who gave son midwifery in London. In them, he explained the extrument, and the mode of its application. The forceps he yed resembled in the shape of the blades those at present the handles were of steel and hooked at the extremity.





unt hooks being turned inwards. The blades were united kind of mortice-lock, just like the blades of a pair of scissors. d's were similar. Soon after Chapman published his nt of the forceps, the inventive genius of the profession was r employed in making improvements in it. Some of these, rton's, did not deserve the name, being rather more clumsy than the original instrument. Others were only alterations, at the introduction of any new principle. But in 1752, ie's work appeared; and to him we are indebted for the that is the basis of all the modern instruments. ce before his time is best described in his own words:common way of using them [the forceps] formerly, was by racing each blade at random, taking hold of the head any pulling it straight along, and delivering with downright and violence, by which means both the os internum and the os were often torn, and the child's head much bruised. nt of these bad consequences, they had been altogether disused

ig. 92. Chapman's forceps; from which Gregoire's and the French seem to be derived.

by many practitioners, some of whom endeavoured, in lieu of them to introduce divers kinds of fillets over the child's head, but not of them can be so easily used or have so many advantages as the forceps, when rightly applied and conducted according to the directions that shall be laid down in the next section.

"Mr. Chapman, as mentioned in the introduction, was the fin author who described the forceps, with the method of using them; and we find in the observations of Giffard, several case in which he delivered and saved the child by the assistance of this instrument. A forceps was also contrived at Paris, a drawing of which may be seen in the Medical Essays of Edinburgh, in paper communicated by Mr. Butter, surgeon; but after Mr Chapman had published a delineation of his instrument, which was that originally used by the Chamberlens, the French adopted the same species, which, among them, went under the denomination of Chapman's forceps. For my own part, finding, in practice, that, by the directions of Chapman, Giffard, and Gregoire at Paris, I frequently could not move the head along without contusing it, and tearing the parts of the woman (for they direct us to introduce the blades of the forceps where they will easier pass, and, taking hold of the head in any part of it, to extract with more or less force, according to the resistance), I began to consider the whole in a mechanical view, and reduce the extration of the child to the rules of moving bodies in different directions. In consequence of this plan, I more accurately surveyed the dimensions and form of the pelvis, together with the child's head, and the manner in which it passed along in natural labours; and, from the knowledge of these things, I not only delivered with greater ease and safety than before, but also had the satisfaction to find, in teaching, that I could convey a more distinct idea of the art in this mechanical light than in any other, and particularly give more sure and solid directions for applying the forceps, even to the conviction of many old practitioners, when they reflected on the uncertainty attending the old method of application. From this knowledge, too, joined with the experience and hints which have occurred and been communicated to me in the course of teaching and practice, I have been led to the form and dimensions of the forceps, so as to avoid the conveniences that attend the use of the former kinds." Smellie troduced two very obvious improvements in the forceps, which the since been retained, and may be considered the essential tributes of the British forceps. (Smellie's Midwifery, vol. i., 250—252). He first proposed the present mode of locking forceps,\* and also had the handles made of wood in place of the (fig. 93). These alterations have not been followed in



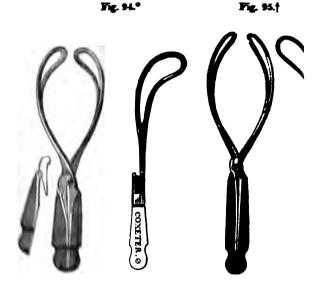
the iron handles; Gregoire's had their hooked extremities are outwards; the method of locking was the same: these still retained in Levret's forceps, which has been for many sering general use in France. So that Gregoire's forceps may considered the parent of the French—Smellie's of the British treps.

From the date of Smellie's forceps to the present day, these ading characters have, with a few exceptions, been continued in construction of the British instruments, but they are almost only points in which they agree. The varieties in other prects are almost endless: no two instruments are alike; and zeal with which new changes are proposed and defended, the priority which each inventor claims for his favourite instruct, and the constant introduction of some slight alteration, just

r. Rigby attributes the introduction of the lock to Chapman.

enficient to establish the parameters of the new force desire for novelty would had use to emprove that a new was an essential introduction to prestine. It would be tedious continuation of the history of this instrument, to in detail all the different function proposed or employed names of the insections; it is more desirable to point the suggested in the different parts of the instrument, and the which they are intended to accomplish.

The Length of the Forceps is generally about 11 inche the handles, 64 for the blades. These intended for to operation exceed this. The late Dr. Hamilton's forceps



New 131 inches in length; Brünninghausen's, introduced New 131 inches (fig. 95); Dr. Radford's long forceps, 131

<sup>&</sup>quot; the ma Wadnering haumen's forceps, used by Dr. Rigby.

4.79, p. 315). Those which are less than 11 or 12 inches are stylintended to be used when the head is resting on the perinæum. It is length is generally preferred by practitioners who that to use this instrument for the purpose of shortening a bour which may be much prolonged. Aitken's short forceps 74, p. 309), Dr. Collins's (fig. 75, p. 309), and Denman's 72, p. 308), are about ten inches in length.

The Length of the Handles is very different, even in forceps tich are made for a similar purpose; for instance, the handles the long forceps used by Dr. Rigby are fully 6 inches; of Dr. dford's only 3 inches. It is obvious that, the greater the 5th of the lever, the greater the power gained; therefore, are much power is sought for, the handles must be long; when 5 great power is dreaded, the handles are made very short.

The Length of the Blades is more uniform, being generally ween 6 and 7 inches. The blades of Denman's forceps are

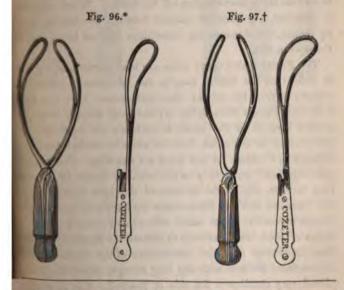


fig. 96. Haighton's forceps. Blades very light and slightly curved wards. Handles long.

Fig. 97. Dr. Ramsbotham's forceps, with shank and second curve.



straight, having only a single curve outwards from others, especially the long fitteess have a second c wards, to correspond with the axis of the brim of The latter was first suggested by Smellie and Pugh, an adopted by Drs. R. W. Johnson, Osborne, Haighton, Rigby, Ramsbotham (fig. 97), and others. The deg lateral curvature is very important. Some are made the head without compressing it; when such is the the distance between the centre of the blades, when most apart, is about three inches, the distance betwee tremities of the blades 11 to 21 inches, or what is ju to prevent them from slipping off the head. When c is intended, the greatest distance between the blade 21 inches, that between the extremities half an inch, times even less.

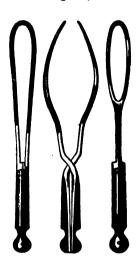
The Fenestræ also vary: some are long, narrow, an in order that the blades may be the more easily in withdrawn from the pelvis; other instruments have the wide (Dr. Davis's remarkably so) and oval shaped, at greater breadth of the blade, to embrace the head pletely, and at the same time to allow its widest p through the blades. A few have no fenestræ. The

other a notch which fits into it. The late Dr. Beatty contrived a forceps with a transverse opening in the one blade, through which the other passed (fig. 98).

Fig. 98.\*



Fig. 99.†

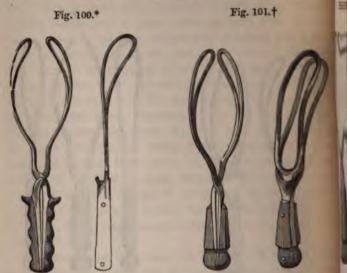


er of Edinburgh has proposed another modification of ment, which we are informed is much used in Scotland, tra of one blade is carried down to its handle, and in g the instrument, this elongated fenestra is slipped over of the other single blade of which is first introduced, serves as a guide to the second (fig. 99).

m of the forceps has also been modified in other ways icians. Dr. J. Y. Simpson's forceps is provided with ove the joint to prevent unlocking; the joint is so loose w a considerable degree of lateral motion; and the formed so as to be used as a tractor rather than a com-

<sup>8.</sup> Dr. Beatty's forceps. † Fig. 99. Dr. Ziegler's forceps.

pressor (fig. 100). Fig. 101 represents a modification of Ziegler's forceps, copied from a pair supposed to be Dr. Ziegler's, but of which the inventor is unknown. In Dr. Churchill's forceps (fig. 102) the blades are straight, and the fenestræ short; the

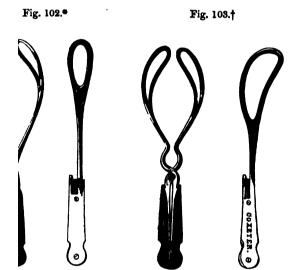


greatest distance between the blades is near the extremity. In Hopkins's forceps (fig. 103), the blades have wide fenestre, and a second curve; the shank forms a ring; and the handles are long.

These are the principal varieties introduced in the construction of the instrument. We have endeavoured to explain the objects intended by them. Among so many, each differing from the other, and all used by accoucheurs of acknowledged skill, it is no easy matter to determine which forceps is the best. In making a selection, therefore, of any, we must not be understood as wishing to depreciate the value of those we reject. In the con-

<sup>\*</sup> Fig. 100. Simpson's forceps. † Fig. 101. Modification of Ziegler's forceps.

f these instruments, two different principles seem to followed. Some have wished to render the mechanism ps as perfect as possible; others have sought simpli-

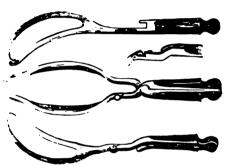


onstruction. The former have contrived instruments wer, but which are not very easily applied. The latter ded in the facility with which their forceps may be hough with some of them the power is extremely our late respected professor, Dr. Davis, contrived a: 104) which may be taken as an example of the its mechanism it is perfect. It is exactly fitted to f the child, so as to lie close without bruising it; the e made very wide, in order that the parietal promay pass through them; and the blades are curved backwards, in order to correspond with the axis of If it be applied to the head of the still-born child, the

<sup>02.</sup> Churchill's forceps. † Fig. 103. Hopkins's forceps.

treet manner in which the head is embraced is quite obiographic, when it is accurately passed over the head of a limit arrested in the pelvis, there cannot be a greater extraction

Fig. 104.\*



m. a order to accomplish these mechanical advantage and it is not easy either to introduce ..... When the ear is near the os pubis, we blade over it, the fenestræ are too wide ass would the symphysis; the blade must first bepare the ischium, and then brought gradually roul e pubes; which is certainly inconvenient, and acceptoner may be embarrassing. Again, the send .... backwards, although receiving the support perienced operators, seems to us to be liable # ... You may, in your hurry, introduce the wife you avoid (and of course you will be careful same, the curved clade passing in a direction condle, you cannot be so certain that it is . ... the other hand, the advantage claimed in is one founded much more on theory than peccious apply only to the instrument in the equired that practical tact which is so

L Dr. Davis's forceps.

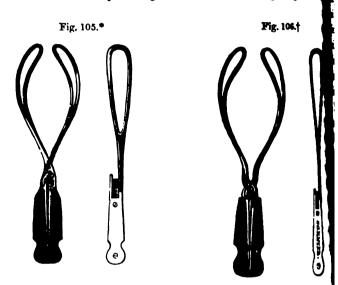
necessary in this branch of your profession, and which experience will ultimately give you, you will also acquire with it that facility in the application of the forceps, which will render it a matter of indifference which you select, provided the instrument is at all properly constructed.

But, in commencing your career, we must advise you to avoid all complications in instruments—the simpler they are, the safer they will be in your hands. For this reason, we prefer forceps of the latter class, such as have been used by Smellie, Denman, and others, who employ the straight forceps, with the blades the trow, and the fenestre pyriform. These can always be easily introduced or withdrawn; the handle is a perfect guide to the direction in which the blade is passing, and the only point which it is necessary to secure is, that the blades do not slip when extraction is made. This cannot take place if the blades be properly tured: their curvature is one of the most essential points in the construction of these forceps. Their extremities should be sufficiently close to retain their position on the head without bruising the face; and at the same time, the space between the blades is said be sufficiently wide to prevent much compression of the comium.

Experience can alone decide between the merits of similar intruments on a point of this kind; and having used several of the forceps, that which we have found to be the best, and one which we are disposed to recommend to you, is one used by Dr. Beatty, Professor of Midwifery to the College of Surgeons in Island, and described by him in the Dublin Journal, vol. xxi. The whole length of the forceps is 12½ inches; the distance between the extreme points of the blades 1½ inch; the greatest distance between the blades is three inches; the breadth of the blade lineh. (Fig. 105). This instrument is well calculated for that

These measurements are those given by Dr. Beatty, in the Dublin I wraul, but the instrument which is in our possession, and which we have md so useful, varies a little from this. The entire length is eleven inches and a half; the handle, four inches and a half, blade seven; greatest breadth between blades, three inches; between extreme points, one inch

operation which we have described as being intermediate being the operations with the long and short forceps—viz., what head is in the cavity of the pelvis, without touching the periods



When the head is resting on the perinæum, a shorter force would be more convenient—for instance, that of Dr. Collin which is about ten inches in length (fig. 75). But what the head is fixed in the brim of the pelvis, the forcess Dr. Radford, having unequal blades, appears to be the suitable (fig. 79). In giving you this account of an instrument so much importance as the forceps, we wish to avoid a ing you into what seems to us a great error—viz., a believed.

and an eighth. In this instrument we have added a shank to the blad about one inch in length, when it is necessary to introduce them high with the pervice cavity. It is right to state, that the length is taken in direct line from the extremity of the handle to the extremity of the combinate.

but by mechanical skill in the construction of the instrument, great deal more can be accomplished by it than what is sally the case. Hence every practitioner has his favourite forceps, and no little boast is sometimes made of the deliveries accomplished by it. But we would beg of you to remember that Smellie and Denman, with their simpler forceps, had as much success as Hamilton and Davis with their more ingenious instruments, and that the success of an operation depends much more on the hands that use the forceps than on the instrument itself.

It is necessary that the forceps should be sufficiently well formed tembrace the head conveniently, without bruising any part. It bould be capable of being easily locked and unlocked, the blades introduced or withdrawn without difficulty, and the handles of the length to hold the forceps firmly, but no more; you should avoid making the length of the handles a means of increasing the power of the instrument. If you secure these points in the forceps you select, you have gained every advantage the instrument can give you; for the rest, your success must depend upon your previous education.

Instruments for Perforation and Extraction.—It is unbressary to dwell at any length upon those instruments which we used for perforation and extraction of the head. This peration was the only one known before the forceps was invented, and at first was never attempted until the child was dead; it was then drawn away by "hooks and crotchets." If the head were toolarge it was opened by some pointed instrument (Raynald used perknife), and the hook placed inside. In course of time these instruments were brought to a more definite form, and reduced to the present instruments employed.

Perforator. The first attempt at a perforator was made by Sir Fielding Ould, who invented an instrument which he called "twelra occulta." The point was rounded, had a cutting edge, and was concealed within a sheath, to prevent it injuring the passages. In 1752, Smellie proposed scissors with a short edge on the outside, terminating in a blunt stop (fig. 107). By this means, he intended not only to perforate the bone, but also to cut away the broken fragments. Denman modified this instrument

## STETRIC ENSTRUMENTS.

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Fig. 10e - Fg.II

inaltered from Denma's time in the suggested an improvement in the suggested are referred to open in the suggested as the sug

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direct i blade. • Fi \_\_\_\_ry inconvenient, and an assistance. Naegele, however, all \_\_\_anuer, that by pressing the harmonic thus, with Naegele's performance.

., caec, and, with inaegele s

† Fig. 108. Denman's perfor

mand can accomplish what requires two with Denman's. In roprevent the handles of Naegele's perforator closing too, while being introduced, a straight steel rod passes from the other, which can be very easily removed; but, if the a between the rod and handle be not nicely fitted, if it be too, or too loose, this object may be defeated; and if the handles not kept quite apart while the perforator is being introduced, wints separate from each other too soon (fig. 81, p. 323). The Mr. Holmes endeavoured to obviate these accidents—first, thering the handles, removing the steel-rod, and changing direction, so that, by pressing fully against them, the blades the perforator is attached to one blade only (fig. 109).

Naegele's steel rod is attached to both blades of the het, but joined in the centre; so that, by pressing against the the blades are kept apart, it cannot slip; but by drawing the towards you with the finger, the rod is doubled and the close (fig. 110).



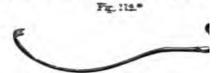
The Crotchet has undergone but little alteration. That invented Mesnard, and adopted by Smellie, is still very generally used. have already stated to you the importance of having the shaft





Fig. 110. Simpson's perforator. † Fig. 111. Crotchet having the

of the instrument properly curved, and not, as is made quite straight, which is only suitable for the ration which we have beserved in Elizabeth S and which you should not assempt. Very lately



has introduced some improvements in this instru The handle is placed at right angles with the sha ment, something like the handle of a boot-hook; a the perforator is notched, so as to have two shot the bone, in place of one long one, which might po

The Craniotomy-Forceps is sometimes employed to the crotchet: we have already stated the object strument when made as originally designed by Estrong points of blade, in forcing through the break it up into fragments, without moving the hethis, Mr. Coxeter, of Grafton-street, has, at my stone, by which the bone can be very firmly held broken. The surface of the internal blade is st

Fig. 113.†



with rough lines, which correspond with grooves i Sanks and the bone being held between them can I

by a L Charlin's crotchet

## EMENTS OF FORCEPS' WHICH HAVE BEEN CHIEFLY USED IN BRITISH PRACTICE.

IK.	LENGTH.				BREADTH.				*	
	Whole,	Along a	Direct. m	Of handle.	Greatest between blades.	Between points.	Of blade.	Length of shank. Second curve.	AUTHORITY.	
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In the Long Forceps, "p. 3.

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"If For

## LEATURE XXII.

" THE CANTOL LANCE MARKET, FREE, ENER PRI

Parties which askeds are time in which some no mil i man me head presents; they form another Tennic e seinme et merri litere. notices in the organization that allowed them to main une sam figurel une fisculted un endless : remartiral positions: in their there is no part of t solds these in its permittal has not been made besing the later beam not only presentations of me them but has mose if the back, abdomen, r ast so in not in and peterally when the disprop the condition feature is so great in consequence tess of the find has to account for so unusual a so he vertex of more practical importance to directhese runtiles it posterutural positions which in carried when the child is fully grown, and the p tel the lineasions: it is in such cases that interthe lattly required; and upon the skill of the Several tale safety of the child.

Preternatural presentations may be divided into 1. These in which the usual position of the chil and the lower part of the body presents at the pethe head.

2. Those where the child lies transversely across the body resting obliquely on the brim of the pelvish-culder and arm present in place of the head. I in popular language "a cross-birth."

In the first division we find presentations of the

Ence, Hip, etc. The second is confined to those of the Shoulder

BREECH-PRESENTATIONS afford the best examples of the inverted position of the child, which may, nevertheless, pass safely through the pelvis, although the chances of failure are immeasurably reater than when the child is in its usual situation, presenting to bead. A little reflection on the inverted position of the said in the uterus is sufficient to show why this should be case.

The child forms an oval figure, the back strongly curved, the and resting upon the chest, and the limbs doubled upon the abdomen. When the head presents, and that end of the oval is spendent, the efforts of the uterus to advance the child tend to minim this form: the head, resisted by the pelvis, is pressed against the chest, while the limbs are compressed by the Merus against the abdomen; but when the position is reversed, at the breech presents, there is the constant risk that the limbs I the child, as they enter the pelvic cavity, may drop down, the ral disappear, and the straightened body of the child act like a and narrow wedge, imperfectly dilating the passages; the conlation of the funis, also, may be interrupted, and the delivery the head impeded, if not prevented, in consequence of the being so insufficiently prepared. For these reasons reference is generally necessary to aid the delivery of the child, d to preserve it from injury. In too many instances, its life been needlessly sacrificed from awkwardness; and, as the consibility of any mismanagement must rest on the practiomer, it becomes a matter of importance clearly to understand positions, to study the manner in which they pass through pelvis, and to have a correct idea of the mechanism of their

The child may enter the pelvis with the back looking forwards,
as to correspond to the anterior or pubic segment of the cavity;
the abdomen and limbs of the child may occupy the same
ion. It passes into the cavity either in the right or left
ne measurement of the pelvis. Hence, as in head-presenta, four positions of the breech may be described—the right

and left anterior dorsal, and the right and left posterior dorsal positions. For all practical purposes, however, these may be reduced to two—the Anterior Dorsal and Posterior Dorsal Positions.

The Anterior Dorsal Position is the most frequent; and who the breech enters the brim thus—if it pass like the first position of the head in the right oblique measurement of the pelvis—the



sacrum will correspond to the plane of the left ischium, and thighs and genitals to the right sacro-iliac synchondrosis. Its descent, the breech observes the same law as the head: enters the pelvic cavity obliquely—that is, the side of the breech next the os pubis descends lower than that next to the sacrum and this position is retained throughout. If the limbs be no disturbed, and do not escape from the vagina, the lower partithe body of the child will pass in this oblique direction safe over the perinæum, and be expelled. The shoulders then enter the pelvic cavity in the opposite (the left oblique) measurement.

ilded, and corresponding to the right sacro-iliac syn-If the action of the uterus maintain sufficient preshead, so that the chin continues resting on the chest, ill enter the brim in the same measurement as the ring its shortest axis (the occipito-bregmatic) coinci-Consequently, the head may pass through and be n this position quite as safely as in the usual manner. is not, therefore, absolutely necessary if these natural served, and the action of the uterus be adequate to its this seldom happens, since there are many causes in disturb and derange the order of delivery, which we itly consider. The breech may also enter the pelvic e opposite side, having the sacrum applied to the plane it ischium (the right anterior dorsal position). In e child passes through it in a similar manner as the tion, the relation to the pelvis being reversed.

Dorsal Position. In this position the head may enter avity like the third or left fronto-cotyloid position of



\* Fig. 115. Posterior dorsal position.

the head. The sacrum, then, corresponds to the synchondrosis, the thighs to the plane of the left nates lie obliquely in the cavity, descending me than on the sacral side of the pelvis. Here, is observed as in third positions of the head; from this position into the second anterior dowords, the sacrum of the child glides from the chondrosis to the plane of the ischium on the pelvis, and is delivered with the back of the wards. The same rotation takes place when the left side of the pelvis posteriorly (the left position); and thus it is possible for the chil and be delivered without assistance in any of it is, however, much more exposed to accidentation the former (the anterior dorsal) position.

in the former (the anterior dorsal) position. This brief outline of the manner in which by pass through the pelvis, is sufficient to point that Nature has made to secure the safety of pendently of all assistance, and to prove the hering to her principle in all attempts to d interference. In fact, the chief cause of infant : of this description, is the too precipitate intern process, by which means the position of the ch order of its progress, are completely deranged. the limbs of the child be prematurely seiz rapidly down for the purpose of delivery, the is straightened, the chin leaves the chest, the up, the head presents perhaps the occipito-me measurement to the brim of the pelvis, and each side of the head, may still further imped render delivery extremely difficult: the delay the death of the child.

Diagnosis. The symptoms that accompany the mand, indeed, preternatural labours generally degree from natural labours. The pains are not the intervals are longer; the vagina suffers less when the head is forcing its way through the pass

sidex stimulus to the action of the uterus which arises from britation of the vagina being diminished, the pains are br. Auscultation also gives some, but by no means a certain action of this presentation: the fœtal heart is heard higher bore in the neighbourhood of the umbilicus, and sometimes humbar region: the meconium may also be observed colour-be vaginal discharge.

mining breech-presentation. Usually one buttock, the most indent, is found to occupy the pelvis: this is smooth, equal, if it be pressed firmly, bone is felt imbedded in the soft ise; this is the tuber of the ischium, which could scarcely be in the for the vertex. Still, there is the possibility of misgit for other positions. For instance, the shoulder may in such a manner as to resemble the breech—the same smooth, round, tumour is felt covering a point of bone; and in the difference in size between the head and shoulder is be sufficiently apparent to prevent mistake, yet in some

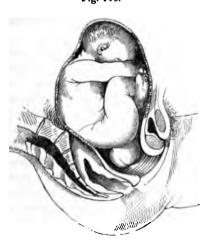


Fig. 116.\*

\* Fig. 116. Swollen scrotum from pressure.

cases it is not so, especially when the present pelvis, and the os uteri is not much dilated mark is necessary, which can readily be obta finger sufficiently high to place it within the limb of the child. If it be the thigh, the geni felt, which proves that the breech is presentil ribs may be distinctly traced as the finger Great caution is necessary in making such ex genitals may be injured. The scrotum free imprudence on the part of the practitioner compressed between the thighs as to swell up (fig. 116); this is increased by frequent exam repeated because the large tumour that is for enigma; extreme congestion is the result, and the parts have sloughed. Even the face mamanner as to cause some little embarrassmen swollen, communicates the sensation of a se beneath which the malar bone is felt, just lil ischium. This can only happen, however, it labour; because, as the os uteri dilates, an descends, the remaining features may be ascen

any doubt.

Treatment. It is obvious, from what has attempts to interfere while the breech is papelvis are premature and injudicious. It sho so long as the pains are advancing the prarrives at the vulva, or even passes beyond the risk that the perinæum may be torn by the of the limbs of the child; when they are delive be compressed as the shoulders and head pass of the pelvis; and lastly, the head itself may separate from the chest, and become fixed, we lying across the pelvis. Although it is possible the pelvis and these accidents, and be delived in the second present of the pelvis. Although it is possible the pelvis are accidents, and be delived in the pelvis are accidents, and be delived the pelvis accidents, and be delived the pelvis accidents, and be delived the pelvis accidents, and be delived to the pelvis accidents, and be delived the pelvis accidents, and be delived to the pelvis accidents, and be delived the pelvis accidents, and be delived to the pelvis accidents, and be delived to the pelvis accidents, and be delived to the pelvis accidents accidents, and the pelvis accidents accidents accidents.

The mode of delivery. As soon as the bree

the vulva, the back of the child should be grasped by one hand just above the pelvis, while the other is passed between the pringum and the limbs, in order to bring down the feet: the leg or knee may be brought within the fingers, and pressed down along the hand in such a manner that it escapes from the vulva without touching the perinæum: the remaining leg may in a similar manner be brought out. When this is accomplished, the ext object of attention is the funis, which should be drawn sown beyond the vulva; the coils that lie in the vagina are thus removed, and the state of its pulsations can be more conveniently examined. It would be advisable, also, to place the cord as marly as possible over either sacro-iliac synchondrosis, in order that the projecting promontory of the sacrum may secure it from the pressure of the head. The body of the child should now be drawn down by the hand that has grasped the back, sufficiently to allow the opposite hand to reach the top of the shoulder. In order to do so, it should be directed along the back of the thorax; and, when the shoulder is reached, the hand should be passed over a to the front of the thorax, carrying the arm along with it down the body of the child and out of the vagina. Great care is necessary in this manipulation, lest the fragile bones of the infant be broken: the clavicle and humerus have sometimes been fractured through violence. When the remaining arm and shoulders have been extracted, the most difficult part of the operation, the delivery of the head, still remains. In order to remove it safely, the first object should be to correct any malposition that may have occurred. The chin must be brought down upon the chest, and retained in that position. This is generally effected by passing the finger of the introduced hand into the mouth of the child; but this alone is not sufficient: the opposite hand should be passed up to the back of the head, so as to press firmly with two fingers against the occiput, while the mouth is drawn down in the manner described (fig. 117.)

It is sometimes difficult to alter the position in this way, and it may be necessary to pass the fingers along the face towards the forehead, so that they may press it down like a vectis; but this is seldom required. The head should be extracted as quickly as

possible, because the funis is now exposed to a dangerous presure. In the act of extraction, the direction of the head shoul be changed as it passes through the pelvis. Before the hea





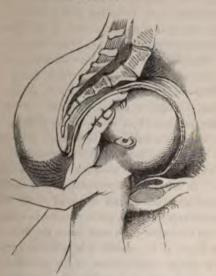
presses upon the perinæum, the direction of the force should be in the axis of the brim, and afterwards in the axis of the outle. The head, as it descends, should also be rotated from the later towards the antero-posterior measurement of the pelvis; and during the whole of this manipulation the perinæum must be carefully supported.

The chief object of interference in breech-presentations is the preservation of the child: the pulsation of the funis should, therefore, be carefully observed during the delivery. If its rate is

<sup>\*</sup> Fig. 117. Delivery of head.

ch increased, or if the arteries beat feebly, the child should be rected as rapidly as possible. In such a case, there is not time wait for the return of the pains; it would be advisable, there-





that an assistant should press on the fundus uteri firmly he both hands, in order to cause its more efficient contraction the child is being extracted. When the uterus acts strongly, head is less likely to change its position, and the force of the a should be as much as possible increased, to prevent the algebraic of the head, which otherwise would take place when body of the child was rapidly drawn down.

In the delivery of posterior dorsal positions, it is very necessary recollect the rotation of the child as it passes through the pelvic ity; neglecting to aid this change of position, or the ignorance the attendant respecting it, has been a frequent cause of the d's death. It generally happens that the child is drawn

Fig. 118. Delivery of head. Hand used as a vectis.

5:WI THE EASTLY, but in the wrong direction in we the thin rests on the linea ileo-pe effices to extract have only the effect of bringing such a possible that the face looks quite upwards besent is top a the back of the child; and althomusting head must be so delivered, still it is ve in here the hable that it becomes fixed in the b the star measurement of the head (the occipi in vo und its of lique axis, and there arrested: in it is a necessary consequence, the funis being tressed This event may be hastened, and all Le la ist in furtier mismanagement. male to after the position of the head, by twisti a extend of that the back may be brought rou sole of the pelvis: the head, however, refuses in its strategici, if we can use such a term w NST. TULLET In this dilemma additional aid is he and the musulant had all but the head of the wind it is told every effort failed to remove, in co contraction of the pelvis! In such cases, the firs tion is the firms: if it pulsate, it is better at or vects in the filling measurement of the pelvis, in which the head is arrested, to raise the head fi and to turn it towards the sacro-iliac synchondry sile: when this is accomplished, the vectis may and a finger pressed into the mouth of the child the head and complete the delivery. If this be do with promptitude, the child may yet be saved: vectis may be dispensed with. It is sufficient to along the cheek to press round the head toward articulation, and, when the position is thus change before. If the pulsation in the funis have ceased, for haste; the head may be extracted by the h if wedged in the brim, the cranium may be perfor ear or through the mouth, the crotchet introduce

We have stated, that the natural efforts to

brought down.

tations should not be interrupted until there is some risk my either to the perinseum or to the child: the time, thereor interference, is usually when the breech has passed the but there are exceptions to this rule. In some cases, the are feeble, and return at long intervals; the child descends lowly through the passages, and the funis is often exposed ag to pressure at the brim of the pelvis. It would not, re, be advisable to allow the breech to continue to move vly through the vagina; the action of the fætal heart should ertained, and, if necessary, its progress should be assisted nisted on the principle we have endeavoured to lay down. istant should press firmly over the fundus uteri to increase ect of the pains, while the practitioner, placing one or two within the fold of the groin, draws it gently down with n; a moderate dose of ergot of rye would also be servicestimulate the action of the uterus. In these instances of ture interference, the difficulty of delivery is always sed, because the head is seldom brought into the pelvis in a





n so favourable as it would have been if the uterus alone ad the child; consequently the risk to it is greater, and

<sup>\*</sup> Fig. 119. Presentation of the feet.

its safety will depend entirely upon the skill and intelligence of the practitioner who undertakes the operation; hence may be inferred the importance of studying the mechanism of these presentations.

Presentations of the Feet are more hazardous to the child than breech-positions, because the soft parts are so imperfectly dilated by them; the pains are weaker, and the funis is more exposed to injury during the progress of delivery. In all such cases, therefore, assistance is generally required. One or both feet present sometimes in such a manner that the case is more like an imperfect breech-presentation; that is, the breech descending with the feet and limbs, doubled up on the body of the child, is arrested by the brim of the pelvis: the action of the uterus is directed from the breech to the limbs, which are forced down into the vagina, and thus constitute a footling presentation. Foot-presentations may be divided in the same manner as breech-presentations into anterior dorsal positions, in which the toes look towards the sacral side, and posterior dorsal positions, when they are on the pubic side of the pelvis.

Diagnosis. The symptoms that accompany these labours are also similar to those of breech cases; the pains are short, apparently inefficient, and return slowly; and the duration of labour may be consequently protracted. The os uteri is less perfectly dilated in footling than in breech cases; and, before the membranes are ruptured, it is sometimes very difficult to feel the presenting part, and equally so to determine what it is when it comes within reach; the foot and the hand may be easily mistaked for each other, because, while they are surrounded by the liquor amnii and membranes, an accurate examination cannot be made-It is very important, therefore, to educate the sense of touch as perfectly as possible, to take every opportunity of feeling the hands and feet of the child, so as to accustom the fingers to the sensation they communicate, and thus to acquire a facility in making these examinations. This may be practised with any infant after its birth. When an accurate sense of touch is acquired, the foot may be detected through the membranes, although only a small part of it be felt; but otherwise it is very difficult. The fingers, when extended, resemble toes. When the foot is pressed up against the leg, the ankle is like the elbow: the knee and elbow also resemble each other. The diagnosis is best made when the waters are discharged. The toes differ from the fingers in being shorter and of more equal length; the great toe is not so far apart from the others as the thumb is from the fingers; but the most certain means of distinguishing one from the other, is by folding, or attempting to fold, the phalanges; the fingers can easily be doubled and the hand closed, but the tes cannot. The condyles of the ankle and elbow joints resemble ach other very much; the os calcis communicates the same sensation as the olecranon process, and the foot, being very long in proportion to the leg, against which it often lies closely applied, resembles in some degree the fore-arm; the latter, however, is bound and smaller near the hand, while the sole of the foot is fatter and broader near the toes: the distinction is easy if the finger be passed sufficiently high along the limb to make a careful examination of it. The knee-joint bears a closer resemblance than the ankle to the elbow-joint. It feels, however, rounder, and is without any projecting point of bone like either the os alcis or olecranon: the patella may be felt, but it is so small, and is often so embedded in fat, that it is not easily perceived.

Treatment. The treatment of footling cases is similar to that of breech-presentations, only that manual interference is more absolutely required to save the child. Before any attempt to beliver is made, the presentation should be carefully examined, in order to ascertain whether the breech be within reach; because, if it be possible for the breech to descend in place of the foot, a great advantage would be gained. In those cases, therefore, where the breech is found resting on the brim of the pelvis, the foot should be prevented from descending into the vagina; rather press up the foot during a pain, so as to get the breech more towards the pelvic cavity: it might even be possible to hook a finger in the groin and bring the breech down. So long as the funis is affe from pressure, it would be advisable to delay the delivery, in order to give the uterus time to effect this change; but if the cord come down, any delay is dangerous to the child.

If delivery be essential, your next object is too possible, into a semi-breech position; that is, to foot only, and to prevent the other leg from same time. This will have a useful effect on the passages, which is the great cause of directivery of these cases. If you cannot succee come down, the child must be extracted as soon to aid this object, you should endeavour to dile as much as possible with the hand that is in vagina. This may be done by pressing the liftently against the floor of the vagina, the percecyx, while the child is being delivered: the the uterus to more powerful action.

KNEE-PRESENTATIONS are less frequently me which have been described: and when they o more likely to prolapse, because, from the posit receives less support. Only one knee generall

Fig. 120.\*



may be brought down while the remaining litthe uterus, in order that the child may be delived possible as a breech case. The time for deliver

<sup>\*</sup> The tox Asset presentation, with funis pro

the state of the funis. If it be safe, the more time that for the dilatation of the os uteri the better; but if it you cannot wait without endangering the child.

breech-positions, and should be similarly treated; the with the hip across the pelvis, presenting a round soft vering a bony prominence (the trochanter): the fold





the on the abdomen, and the spinous process of the ay also be felt. As labour advances, this position will lf, and the breech descend into the pelvic cavity. Ited Pelvis, with a Preternatural Presentation, greatly the difficulty of delivery, especially in the extraction of the child is therefore generally lost, as it seldom at the funis escapes pressure; nevertheless it may do romontory of the sacrum project much, and the funis near the sacro-iliac synchondrosis. If this should the ovate pelvis, it is possible that steady traction in the brim may succeed in bringing the head through

pulsation has ceased; and, if so, it may be easily om the cavity of the pelvis, and the child preserved;

<sup>\*</sup> Fig. 121. Hip-presentation.

but in doing so, all violent efforts to extract the head should h avoided; pulling, or rather jerking at it, with all your strength as is sometimes done, is very objectionable, because, if the chil be living, it is the most certain way of destroying it that can b adopted. At this tender age, the odontoid process has only ligamentous union with the vertebra dentata: it may easily b broken off, and death thus caused. The effect of concussion of the nervous centres, also, should be considered. We have seen (we could almost say frequently) cases thus delivered in which the child was still-born, and, from its appearance, gave every evi dence that death was caused, not by pressure on the funis, bu by nervous shock: the heart and respiratory nerves were para lysed, so that no stimulus could excite them. In other deform ties the child seldem escapes—the pulsation in the funis soo ceases. When the child is certainly dead, it is better to pe forate behind the ear or through the mouth, to evacuate as muc of the brain as possible, or to draw down the head with th crotchet.

Complications sometimes accompany these presentations, the require notice.

The Hand and Foot may present together in such a manner may make it difficult to distinguish them. When the membrane are ruptured, a careful examination should be made, and if foot brought down, in order to convert the case more complete into a footling presentation: if the funis be safe, it is better to interfere further, but to leave the case for some time to the natural efforts, in order that the passages may be better preparation delivery. If the membranes be entire, no accident can occur so long as the waters are retained in the uterus; and, therefore interference is unnecessary.

Heads locked in Twin-Birth. A complication of a singul character has been recorded, in which delivery was rendered a tremely difficult. The late Dr. T. Ferguson, of Dublin, related a case of twins in which the first child presented the foot, as was delivered without any unusual obstacle in the progress the labour, until the child's body was so far protruded as enable him to ascertain, by the pulsation of the funis, then with

delivery he began to experience a most unusual and entable resistance to the further descent of the child. Hiculty was produced by the head of the second child des; before that of the first, so that each locked in the other. leation in the funis of the first child continuing, Dr. Fervished to perforate the head of the second, that caused the tion: there was some delay in obtaining instruments, and, interval, the pulsation of the first child ceased; but, to prise of Dr. Ferguson, powerful expulsive pains forced he heads of both over the perinæum, and the second child rn living. (Dub. Med. Trans. vol. i. p. 146.) Some years r. Elton of Windsor related a similar case. The feet of t child presented, and were brought down; but, "after the had passed, the delivery became slow and increasingly

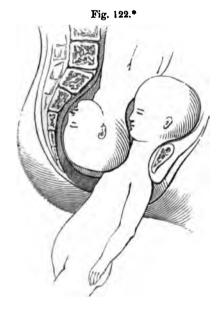


Fig. 122. Heads locked in a twin-birth. Mr. Elton's Case.

difficult; the abdomen suffered great com the thorax still more; the difficulty beca further progress of the body; the arms were trouble, and, when it was practicable, an ex I" (Mr. Elton) "found the vertex of a full-s immediately over the breast in the position have been a chin; the anterior base of the in close and compressed contact with the latter firmly impacted in the pelvic cavity." the neck of the first child; and, having ren body, applied the forceps to the second child but could not save, although attempts "to re long and anxiously continued." (Medical Go p. 52). What is to be done in such a case as should not be disposed to destroy either child the perforator or the amputating knife, we sl practicability of applying the long forceps second child, and endeavour to imitate natur son's case.

## LECTURE XXIII.

PRETERNATURAL LABOUR: SHOULDER AND AR

Shoulder and Arm Presentations.—The nex natural labours consists of transverse position the shoulder and arm of the child occupy the deviation unfortunately occurs, delivery, ur exceptions, can no longer be accomplished by of the uterus; and therefore the aid of the accomparative, in order to conclude the labour. positions demands the closest attention; because met with, you are obliged to turn and del to do so with promptitude, in order to preserve

Mechanism of Arm-presentations, and their relation to the should be thoroughly understood. A shoulder-position previously prepared with an accurate knowledge of its, and the mode of delivery, no time is allowed to study it; and the mode of delivery, no time is allowed to study it; and proceed with the operation at once, or give it up alto
If you are sufficiently imprudent to persevere, and to do that which you do not understand how to do, you be responsible to a most serious extent: such attempts have sollowed by the most disastrous results, and have destroyed the life of the patient, and the character of the prac-

ahoulder and arm may present in four different ways.

Fram may occupy the brim of the pelvis. The back of hild may lie backwards or forwards. These four positions like breech-presentations) be included in two divisions.

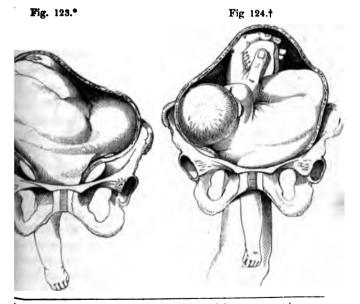


Fig. 123. First anterior dorsal position: right arm presenting.

Fig. 124. Second anterior dorsal position: left arm presenting.

 The Asserier Dorsel Position of the right arm or the left presenting.
 Position, subdivided in a similar mann right or the left arm lies in the pelvic cav

Auterior Divad Positions are the most: arm, we think, presents oftener than the sider this as the first position, and prelations.

In the First Anterior Dorsal Positio shoulder occupy the brim of the pelvis: t having the occiput forwards, rests in the le lies obliquely across the lower segment of is upward and to the right side; the legs of collected together at the back of the uterus

The Second Anterior Dorsal Position is only that its relations to the pelvis are revis in the brim of the pelvis; the head in the breech to the left side; and the limbs at the

Posterior Dorsal Positions. In the I Fig. 125\*

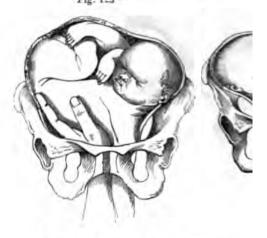


Fig. 125. First posterior dorsal position: le
 Fig. 126. Second posterior dorsal position:

this; the left shoulder and arm present at the brim of the ris; the head, having the face forwards, rests in the left iliac.

The abdomen and limbs lie obliquely across the anterior is of the uterus; and the breech is to its right side.

he Second Posterior Dorsal Position has the right shoulder arm in the pelvis, the head in the right iliac fossa, and the sch to the left of the uterus; but, in every other respect, sembles the first posterior dorsal position.

my of the positions may be met with; but the same manner uning the child cannot be adopted with each indifferently. Let, the ill success of this operation, and many of the accimathat have occurred in attempting to turn the child, might will attributed to ignorance of its exact position. A kind of azard attempt is made to reach the foot: if it succeed, it is me forcibly out of its proper direction, and the difficulty of very is greatly increased. Thus in this protracted attempt child is generally sacrificed, and sometimes even the uterus been ruptured.

be Diagnosis of any of these positions is easy, provided that rm is sufficiently within reach to make a perfect examination For this purpose it is necessary, as soon as the waters e, to pass the fingers along the arm, as it lies in the vagina, th as possible towards the shoulder; and then, as the fingers sing withdrawn, to supinate the arm as much as possible, ring the hand of the child so placed outside the vulva. examination of the hand will determine the position of the in the uterus. The direction of the palm, whether it look ind or backward, corresponds to that of the abdomen and of the child; and the position of the thumb, whether it be left or to the right side of the pelvis, will be the same as seition of the head. For instance, in the first position nor dorsal) the back of the hand looks forwards towards the side of the pelvis, and the thumb is on the left side; the of the child is, therefore, anterior, corresponding to the of the mother, and the head rests in the left iliac fossa; domen and limbs lie towards the back of the uterus. In manner any of these positions may be ascertained with

facility, provided that the membranes are ruptured and the waters are discharged, when the operation of turning can be undertaken with the greatest advantage.

The signs that indicate arm-presentations are sometimes observable, even before labour commences. The shape of the uterus is altered: it no longer presents its oval form, but is irregular in outline, as if divided into two tumours, a larger and smaller one The stethoscope, also, proves a difference in the position of the feetal heart: it is heard more towards the centre of the abdomen, in the neighbourhood of the umbilicus, rather than in the ilim regions. As soon as labour commences, the pains go on for some time with tolerable regularity and strength, but no advance of the child is made: "they are doing no good," as the midwive say, although sufficiently powerful for that purpose. If a vaginal examination be made, the membranes are generally found to protrude through the os uteri containing the liquor amnii alone sometimes the phalanges or a limb may be felt, but, unless the hand be quite within reach, it is difficult to determine the presentation. We have met with cases where the membranes occupied the mouth of the womb, where even a hand was touched, and after all, the head came down, and the woman was delivered in the usual manner. Lest such might happen to you, it is very necessary not to be too precipitate in sounding an alarm, and preparing for an operation that may not be called for. As labour proceeds, and the dilatation of the uterus advances, the presenting part descends more and more into the pelvis; and then it will be in your power to detect the arm, even through the membranes. An arm-presentation being ascertained, no further vaginal examination should be made; unless the membranes are broken, and the waters are discharged, in which case it will be necessary at once to turn and deliver the child. The capacity of the pelvis, however, should be carefully examined, in order to determine the risk to which the child may be exposed in delivery.

Treatment. The treatment of shoulder-presentations is fixe in all cases where the operation of turning may be performe safety to the patient. Any question respecting it is only fime—when the delivery should be undertaken.

tain cases, however, fall under the notice of the practitioner, nich the safety of the patient is doubtful, and where it less a question whether such an operation can be ventured with propriety. Between these extremes, there are many iss of cases that present conditions which modify the treatwee shall, therefore, consider separately the treatment of— is that present no difficulty in delivery by turning; 2, cases the attended with difficulties to a greater or less extent; and is cases where the operation of turning becomes too danto be undertaken.

Cases that Present no Difficulty in the Delivery must be tood to embrace those that the practitioner has had the unity of observing from the commencement of labour; there is no rigidity of the os uteri, nor contraction of the to interfere with a successful issue: and in the manageof which, the only questions he has to consider are the d the mode in which the operation should be performed. e be any difficulty in the delivery, it must be one of his aking.

time best adapted for turning is when the os uteri is fully or nearly so. If the dilatation be incomplete, there is a risk in the extraction of the head: the limbs and body brought through the os uteri, but there may be great ty in overcoming its resistance so as to allow the shoulders ad to pass, during which interval the funis is compressed, e delay causes the death of the child; besides, the cervix may be torn in the attempt, and the life of the mother ed. It is not, therefore, advisable to interfere before outh of the womb is sufficiently open to prevent any f this kind. For this reason, also, it is better not to e the membranes prematurely for the purpose of turning, e, so long as they are preserved, the liquor amnii dilates the i more efficiently than the presenting part could, and this tage is effectually secured: but whenever the membranes ay, and the waters are discharged, the hand must be passed

into the uterus in order to deliver, lest its fit strongly on the body of the child, and incres the operation.

The time, then, to interfere should be when quite dilated, whether the membranes are h or when the waters are discharged, although the be quite dilated. In the latter case, the dan obviously increased.

The mode of delivery requires your atte avoid the errors that are frequently committee The first step is to determine the exact position moment, therefore, that the waters escape, the should be brought down and examined. ascertained, the practitioner can judge which convenient to introduce for the purpose of tu it will be found more easy to turn with the presenting in the vagina. If the right arm of the right arm should be used in delivery; and the left.\* You can readily determine this po hand of the child, applying palm to palm; ar each lie on the same side, the hands are the the presenting hand be held with one hand, passed along the arm of the child to the axilla over the thorax to the abdomen. The feet ar are generally found here so intermingled, that easy (at least to the inexperienced) to disting advantage, therefore, of previously acquired t larly obvious: but when there is a doubt wh the foot is seized, it may be removed by gras;

<sup>\*</sup> On this point there is great difference among | Some always deliver with the right hand, because, fr it, they have more power, and a more acute touch; of because, the back of the hand being opposed to the fingers are more easily applied to the body of the chil the question, the case itself must do so; and the p ambidexter—prepared to use either hand according to

if they can be closed, it is the hand; if not, being the foot, it should be held firmly, but no attempt as yet made to turn. If you should proceed at once to draw down the foot, there is a great chance that it may slip from the fingers, and not be so easily found again: it is preferable to get not only the foot, but as much of the limb as possible within the grasp of the hand before it is drawn down; by this means, also, more power is gained. We entirely agree with Dr. Radford that it is quite unnecessary to find the second foot before turning, because one limb is sufficient for the purpose, and in searching for the second there is some risk that you may lose the first; it is even possible that you may seize the foot of a second child; an advantage is also gained by leaving one foot in the uterus-the child, when turned, presents in a semi-breech position, which is more favourable for the purpose of delivery than if both feet were brought down into the vagina. When the limb is seized firmly, and traction is made in the intervals of pains, the child revolves quite easily in the uterus: the leg is brought into the vagina, and the remainder of the delivery is completed as in a breech or footling case; but you should recollect that there is nothing left to nature here—it rests entirely on your skill whether the child descend through the pelvis or otherwise. Observe, therefore the direction of the foot -that the toes are directed backwards. You should watch the funis, and bring it down when it comes within reach, and take care that the fundus uteri is compressed while the child is being withdrawn. In this manner, if the operation be undertaken with sufficient promptitude, and time be not unnecessarily lost in going through it, the child is generally saved.

When the hand is passed into the uterus, immediately after the membranes are broken, its fibres yield very readily; nevertheless, it is necessary to avoid irritation as much as possible, and hence, while passing the hand upwards, if a pain return, it is better to rest until the uterus again relaxes; thus, as it were, stealing the hand into the uterus in the intervals of the pains. If an opposite course be pursued, the introduction of the hand may excite strong uterine contractions, and thus the resistance to any attempt to force the hand upwards will be greatly

increased: the fingers become benumbed; sensi necessary, is lost; and there is even a hazard may give way. Ruptures of the uterus are si caused by the projecting limbs of the child, who presume) had been previously weakened his alteration of structure. How much more his accident to occur when the knuckles are pressed of the uterus, strongly contracted upon them! never to force the hand into the cavity of the advance cautiously, pressing forward when the censing to do so the moment its contractions rechild is turned, the more rapidly it is extracted there is of saving it.

2. Cases attended with Difficulty in Turning a in which the membranes have been some time the operation is proceeded with. This may os uteri is rigid, the waters having escaped early the mouth of the womb is sufficiently dilated to Or, in consequence of inattention on the part of other cause of neglect, the shoulder may be allo the brim of the pelvis for hours unobserved, t being aware of the nature of the labour. Had time, there might have been no difficulty in to is too late, the waters have been for a long tim shoulder is fixed in the brim, and the uterus is a about the body of the child. In either case, is the body of the child causing much more in fluid which surrounded it, the action of the ut stronger pains return again and again, but the purpose: the result is, that spasmodic c uterus may be excited, and the fibres surro closely as to render the introduction of the great difficulty. Sometimes inflammation of taken place, an effect still more dangerous to th

The Treatment of such cases is by no means of the former class. If you were to proceed at a culties would oppose themselves in every step he resistance of the uterus to the introduction of the hand; the anger of using too much force; the effect of compression on he fingers, rendering them insensible and almost powerless; the extreme exertion required, and consequent exhaustion of the perator-all these impediments meet you, and would perhaps ender the attempt abortive. La Motte relates that an operation of this kind nearly cost him his life. "Je crus très certainement que je mourrois après cet accouchement, ou j'épuisai et ma cience et mes forces, et après lequel je restai sans respiration; en sorte qu'il me fallut mettre sur un matelas devant un grand for et me frotter avec des lignes chauds pendant plus d'une heure." (Observ. 262, p. 467). Smellie, also, after such an operation, says, " I never was more fatigued; I was not able to raise my arms to my head for a day or two after this delivery, and one of the gentlemen who was present was so much frightened that he resolved never to venture on the practice of midwifery." (Midwifery, vol. iii. p. 243, Case III.) You would not desire such scenes as these, and therefore it would be advisable to reduce as much as possible the causes of difficulty: some preliminary treatment is therefore required. The first object is to determine the existence of inflammation. If the passages be hot and tender; the os uteri swollen and painful; the uterus very hard, intolerant of the least pressure, and irregular on its surface; if the pulse be increased in frequency, with dry tongue and great thirst; you cannot interfere until these symptoms are subdued, and even then the manner in which the patient is delivered becomes a question of serious consideration. Inflammation may not be Pesent, but the uterus is strongly contracted about the body of the child; spasmodic pains frequently return with great agony to the patient, who is irritable and anxious: the pulse is quick, and a certain amount of nervous irritation is excited. All such symptoms must be relieved; and the best means of doing so is by a free depletion from the arm, followed by nauseating doses of tartar emetic in combination with opium. If any inflammation be present, the proportion of tartar emetic may be increased. If there be spasm, with nervous irritation, opium and chloric ether may be given largely. By such means the os uteri will be rendered

more dilatable, the pains more regular, and attended with mucless suffering.

The patient having been previously brought under the influence of chloroform, which in this case is essential, the operation may now be undertaken. The arm being stripped and greased along the back, the fingers in a conical form may be introduced into the vagina, and within the os uteri: there may be still some difficulty in pressing the shoulder back; but by caution in acting only during the intervals of the pains, and with some patience, you will succeed in getting the hand into the cavity of the womb. Great care is now necessary while pressing the hand forward to avoid irritation: the moment a pain comes on the hand should be kept flat on the body of the child, and advanced only when the uterus relaxes. Take as your motto, "arte non vi," and trust to time, rather than force, for effecting your object When the foot is reached the remainder of the operation is generally, although not always, easy. Sometimes, however, it is both difficult and fatiguing; difficult to gain and to distinguish the foot, and often requiring great exertion to overcome the resistance of the uterus. The long-continued pressure, also, on the body of the child and the funis, places its life in great hazard; and, therefore, it is extremely doubtful whether the child can be saved.

Our chief attention should be directed to preserve the mother from injury; consequently, when the os uteri is rigid, and slow in dilating, no attempt should be made to turn until the dilatation is somewhat advanced: no effort should be made to force open the os uteri in order to save the child, because it is very probable that you will not only fail in your object, but also do such injury to the uterus as will endanger the life of the mother also.

Mismanagement may cause great difficulty in turning. We have been called to cases where an unsuccessful attempt was made to deliver the child, and the second arm, by mistake, was brought into the pelvis; the presenting shoulder still occupied the brim, where it was so firmly maintained by the uterus that it was impossible to push it back. In such instances a full opiate was given, to allay nervous irritation; and, while the patient was

wder its influence, the hand was cautiously introduced into the ragina to the shoulder. Here there was some difficulty in admacing, not only because of the shoulder, but of the arm that us brought down. The arm, however, was pressed back, and room was given for the hand to enter the cavity of the tens. By advancing cautiously in the intervals of the pains, le foot at length was reached. The greatest difficulty, however, remained. Easy as turning the child generally is, it is parsurly difficult in such a case as this. There is very little and consequently very little power to act, when the coulder thus occupies the pelvis: the limb that is seized cannot drawn down completely, and it is equally impossible to pass second hand into the vagina, for the purpose of pushing up the shoulder. The only resource, is therefore, to fasten a noose wape on the ankle of the child, so as to secure it, and draw it on. This is not very easy to accomplish; but, if the foot can brought into the vagina, a noose may be formed on the arm, mi passed along to the foot, either by the disengaged hand or with the instrument for replacing the funis. If the foot cannot brought out of the cavity of the uterus, the latter means is the by one you can employ. But we have no experience of its use this way, having never met with a case where the foot could be brought down at least to the vagina. When the noose is tied, the assistant can draw the ends tightly, so as to secure the The hand may now be brought down with the foot as far mit will go, and then, the tape being held firmly, one hand may withdrawn from the uterus, while the opposite passes into the twins, for the purpose of pushing up the shoulder, and thus ming the child. Some adroitness is required in this manipuation; but if it be done carefully and without violence, you will merally succeed safely. Be cautious also that the tape may slip from the foot; because, if it do so, you will have to go me the whole process again. From the value of chloroform in bying the irritability of the patient, and rendering the passages stable, it would be also of great use in such a case as

Deformity of the pelvis sometimes causes difficulty in delivering

the child. It is not easy to pass the hand through the pelvis it is equally difficult to seize the foot when the hand and arm a confined in so limited a space; and if you succeed in turning th child, there yet remains the greatest difficulty—the extraction from the pelvis. Great force is often used for this purpose: d body and the shoulders are generally safely delivered, but the head becomes impacted. To remedy this, the fingers are placed if possible, in the mouth of the child, if not, round the neck it front, while the back of it is seized by the opposite hand, the body perhaps held by an assistant, and a combined and powerla tug made to extricate it. The shock generally destroys the child; the odontoid process of the vertebra dentata is broken of There is no object in using all this violence, because it cannot accomplish the only purpose that could justify it-the safety of the child; a more patient method will answer the purpose much better. When the head is thus arrested, the first object is to secure the funis, if it is pulsate, from pressure; and in a pelvis of this kind (the ovate pelvis) it may easily be placed at either side of the projecting promontory of the sacrum, which will, to a certain extent, protect it, and thus give time for the extraction of the head, which may often be effected by the hands alone One hand may be passed up over the face to the forehead, as to press the head well down on the chest, and the other applied to the neck; if a steady extracting force be then used, renewed at intervals, but without jerking or violence, it will succeed. The vectis may be applied over the forehead in place of the hand, but we do not think it answers so well. If your first efforts fail, not despair so long as there is circulation in the funis; let the patient rest before a second trial is made to extract, and provided the funis is safe, no injury can arise to the child from leaving the head fixed in the brim for a short time: how often does it remain thus for hours in a difficult labour! During this interval the patient may be given an opiate, or, what we think is better, some chloroform. When she is refreshed by rest, and the passages and relieved from the irritation of your first efforts, you may again attempt to extract as before. If this fail, there is no other resource than to perforate behind the ear or through the mouth, as soon as the pulsation in the funis ceases; but if the means we have recommended be managed with judgment, you will not, maless in extreme cases, have to perforate.

3. Turning may be Impracticable or Dangerous. For instance, be uterus may be so spasmodically contracted about the body of the hid, that the hand cannot be introduced; a stricture is formed the junction of the cervix and body of the uterus, which no asonable effort can overcome, nor any general treatment relax: the other mode of delivery must therefore be adopted. The aly practical means is evisceration; that is, to perforate the orax at the axilla, and with the crotchet to remove the conests of both thorax and abdomen; the body being thus reduced, e crotchet can be hooked on the vertebral column close to the eris, and the breech and limbs brought down through the tricture. It may be necessary to perforate the head also behind e ear, in order to extract it. There is no operation in midfery more troublesome to perform, or more disagreeable to look than evisceration: we have naturally an instinctive repugmoe to tear away the infant piece-meal in this manner; still, in case supposed, it must be done, there is no alternative, and upleasant as it is, this operation is much safer, and better calalated to preserve the uterus from injury, than making violent erts to force the hand into it for the purpose of turning the After one or more such unsuccessful attempts, you are impelled to desist, greatly fatigued by the exertion; and the being so much exposed to irritation from this violence, my afterwards become the seat of serious inflammation.

Information of the uterus, if severe, would render turning impacticable, because one of its effects is softening of the fibrous muture, which may give way when the hand is strongly pressed must it, in the effort to reach the feet of the child: thus the true may be ruptured. This has happened more than once whout the true cause being assigned; the practitioner may have been blamed for undue violence, but it is far more likely that he must be blame for want of caution in undertaking the operation at under such unfavourable circumstances. You should therefore be on your guard against a mistake of this kind. If such

measurement and the shift removed by evisceration in the shift removed by evisceration in the shift the thems selfom occurs in these about the proceed cases, when the water

inequiped and the theres, irritated by its own strong programated upon the body of the child arm is program switten, perhaps putrid, as the teen lead the same time previous: the passages the theres very ordered in its shape, and paramit the patients in a high state of irritative the success in turning the child under such useful object can be gained by it; but when infinitions tedere you that success is more the serious in they to the there is almost certain, a very probable result, you will not venture up in operation. The child can only be remove

and as it is frequently posted, and the bones are noted to the source in extracting the head, lest it

sport and named in the uterus. Deep to a of the third is still practised in turn in sungeneticable. This operation has be the time of Calsus, and now remains as a kind nut and is if the child which were had recou Leaves a cross-time, before the operation of Ar confess that we have never met with a case of as which i-curitation was indispensable; and, then properly appreciate the lifficulties that it is inter Under any circumstances with which we have easier to perfect the thorax than to decapital even if decapitation were equally easy, it seems I from which perferation is free. When the I the body, it is true, may be easily removed; bu so be delivered? If the operation be perfor pelvis is contracted, its extraction would appea

of no ordinary difficulty. We cannot recase requiring decapitation: but, as it has be men of extensive practical experience with su-

improper to allow these objections to outweigh facts. The late Dr. Davis and Dr. Ramsbotham have both decapitated the child. The late Dr. Ramsbotham invented an instrument for this purpose -a book, having an internal cutting edge and a long shaft, which was fixed in a wooden handle of the usual length. The maner of using it is thus described by Dr. Ramsbotham:-The finger having been passed around the neck, a large-sized ant book must be introduced upon it, and the presenting part be brought as low into the pubis, as is consistent with the man's safety. An assistant must then steady the blunt hook: be decapitator must be directed over the neck by its side; and, first adapted instrument having been withdrawn, a sawing withou must be given to the cutting-hook by the right hand, the the first finger of the left is kept steadily in contact with blunt point. It will soon be found that the structures give my, and that the separation is effected. The child's body must in be drawn out by whichever arm may protrude, and the head tracted by a crotchet or blunt hook introduced into the foramen grum or mouth; nor will its removal generally offer much Sculty, unless the pelvis be contracted in its dimensions." (Ramstham, p. 371.) Such is the operation, which we may presume sents some little difficulty when the pelvis is contracted; and if be not contracted, and such mutilation be necessary, eviscerais much easier and safer to perform. Both operations are ally to be avoided; but if we are compelled to undertake either, which is attended with the least risk is to be preferred.

Specianeous Evolution, or the natural turning of the child, betimes takes place. It is difficult to conceive it possible that follows child could be forced crosswise through the pelvis; tertbeless, such has happened—children have even been born in this manner. The natural delivery of a cross-birth was at noticed by Denman, who called it "spontaneous evolution." Imman, Ed. 8vo. Lond. 1824, 328). "As to the manner" (he serves) "in which this evolution takes place, I presume that, for the long-continued action of the uterus, the body of the lift is brought into such a compact state as to receive the full the of every returning action. The body, in its doubled state,

to the pelvis and the pelvis and the pelvis are forced go to the forced go to the color of the c

that a series at many like a spenta The state of the second temporal tempor and it is the facts stated by D v. s omi au de pelvi . . . and a second second man min in min man mente dessen g The market make passed in . . . . a a manager a wind the The main however a in the late of the deal instead and the second second second second A contract of the program the same and the same in the transfer of the second lab with a part to the state of the and the same of the same of 

where it is the second by degree of the second by degree of the second by degree of the second by th

esembles the larger segment of a circle: the head rests on this internally; the clavicle presses against the pubis ally, with the acromion stretching towards the mons; the arm and shoulder are entirely protruded, with one the thorax not only appearing at the os externum, but without it; the lower part of the same side of the trunk on the perinæum, with the breech either in the hollow of rum or at the brim of the pelvis, ready to descend into it, y a few further uterine efforts, the remainder of the trunk, he lower extremities, is expelled.

nd to be still more minutely explanatory in this ultimate of the process, I have to state that the breech is not expelled a sideways, as the upper part of the trunk had previously for, during the presence of that pain by which the evolucompleted, there is a twist made about the centre of the of the lumbar vertebræ, when both buttocks, instead of a of one of them, are thrown against the perinæum, disgit very much; and immediately after, the breech, with ver extremities, issues forth, the upper and back part of it ing first, as if the back of the child had originally formed avex, and its front the concave, side of the curve" (Douglas, p. 25-27).

s explanation of the natural delivery of shoulder-presenthas been confirmed by Gooch, Ramsbotham, and other
tal writers: it coincides also with the facts that have fallen
my own notice; nevertheless, we are inclined to think that
neous evolution, in the strict sense of the term, sometimes
. We have met with cases where the arm presented and
ted the os uteri completely; but afterwards it retreated, and
each descended in its place. The united testimony of the
sion confirms the description of Douglas, which, therefore,
e considered as the manner in which this spontaneous expulthe child takes place. But, knowing the confidence that
e placed in Denman's fidelity as an author, we are satisfied
contaneous evolution also sometimes happens. We think that
any likely, when the child is full-grown and living, that the
er, in the intervals of the pains, may gradually leave the

## COMPLEX LABOUR.

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## LECTURE XXIV.

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directed treatment may not save the patient who is attacked by revulsions. In rupture of the uterus the recovery of the patient recorded as a remarkable exception to the general rule; but when the majority of the accoucheur. This alone would be a sufficient reason demanding a careful examination of the subject; but we have additional and equally powerful motive for asking a patient of impartial attention to it—namely, that while, in a case of much danger, it is desirable above all things to have rules of tractice clear, decided, and intelligible, we find them, unformately, so involved in controversial intricacies as to render the obscure, uncertain, and contradictory.

In order to understand the principles of treatment in uterine benorthage, it will be advisable to review, very briefly, the maner in which hemorrhages take place from other parts of the toty, and to point out the principles upon which are founded the different means employed to arrest them. We may compare or contrast the one with the other; and, if they be similar, there can be no difficulty in applying the principles of treatment for general amorrhages to floodings from the uterus. But if, as it appears to us, they be different, and in some degree opposed, it is of the utmost importance to observe and remember the essential directers of each, so as to avoid the very common error of employing treatment quite applicable to hemorrhage produced one way, to the arrest of hemorrhage caused in a manner altogether different.

GENERAL VIEW OF HEMORRHAGES.—There are many divisions ann-uterine hæmorrhages; that adopted by Bichat is the implest, and will best answer the purpose we have in view. Hemorrhages may arise either from exhalation, or from rupture of a blood-vessel. The first variety includes such as chiefly fall exier the notice of the physician; the second, those hæmorrhages which it is the province of the surgeon to arrest. Either practioner may meet with both varieties; but the object of this estinction is rather to direct your attention to the medical and

surgical treatment of hæmorrhages, in order to contrast them with the management of floodings at the time of delivery.

Hæmorrhage by Exhalation is most frequently observed on muccus surfaces; and whether the nostrils, the throat, the lungs the stomach, the intestines, or the bladder be its seat, in all these instances the source of hæmorrhage exists in the minute capillary vessels, which allow red blood to exude from them. Why the do so, it is not our province to inquire; it is sufficient to state, hat vessels, which hitherto resisted its escape, now permit red olood to pass, and that these vessels still maintain themselves apparently unbroken. Hæmorrhages of this kind may be active or passive; either the result of local congestion in the part affected, or of diminished tone in the vessels, accompanied perhaps with an altered-a more fluid-condition of the blood itself. The former variety will best illustrate the general treatment. Take the simplest and most common example of active hæmorrhage by exhalation-hæmorrhage from the pituitary membrane, and observe the symptoms. The bleeding is preceded by symptoms indicating a determination of the circulation towards the part affected—the molimen hamorrhagicum of authors The pulse is full and bounding; the temporal arteries throb; there may be giddiness or headache, a disposition to sleep, noise in the ears, etc. At the same time that this local plethora exists, the circulation of the general surface and of the lower extremities is just as much below, as that in the head is above, the standard; the patient is therefore chilly, and complains of cold. When hæmorrhage takes place, the circulation is relieved, and these symptoms disappear; but if it continue, they are again renewed—there is an effort on the part of the circulation to supply the loss caused by the hamorrhage—there is a determination of blood towards its seat, and the symptoms of congestion return. What are the principles of treatment? It is necessary to direct the current of the circulation from the seat of hæmorrhage, and to lessen its force; hence depletion, cold to the affected part, and other such means are employed. It is also requisite to cause the open capillaries to contract, and to promote coagulation of the blood; hence astringents are indicated, whether applied locally or conveyed through the circulation. Everything that would excite the circulation must be avoided; and, if syncope take place, it is often the most efficient means of arresting the discharge.

Hamorrhage by Rupture of a Blood-vessel is checked in a number somewhat different, which is best observed when the enteries of the surface are injured. If an artery be punctured, divided, or lacerated, the effort of nature in the first instance is to congulate the blood in the injured part. If an artery be divided, the two internal coats of the vessel retract themselves within the outer sheath; the fine cellular tissue, drawn out by this retraction, entangles the current of blood, and an external coagulum is formed, compressing and obstructing the orifice. A conical coagulum is also formed within the artery, and thus the impetus of the blood receives a check; the fibres of the middle coat of the artery contract; lymph is effused at the divided extremity of the vessel; and ultimately the breach is closed. Such is the contrivance of Nature for this purpose; and it would always be successful, only that the current flowing through an artery is so strong as to prevent its accomplishment in the majority of instances: nevertheless, in lacerated arteries, where, from the kind of injury, a more efficient means of coagulation is provided, she ten succeeds. The great object of art is, therefore, to control the impetus of the circulation, and to cause the blood to coagulate. This is accomplished by ligature; but if this cannot be applied, strong compression with the tourniquet is used on the main trunk of supply, and coagulation is induced, by styptics locally applied. In this variety of hæmorrhage, syncope is also serviceable."

In this brief outline of general hæmorrhages, you will perceive that both varieties agree in certain common principles of treatment. First, the force of the circulation must be moderated as much as possible. Secondly, the formation of coagula in the mouths of the bleeding vessels must be encouraged, until they are closed by lymph and by the inherent contractile power of their coats. Let us now examine the points of resemblance, or of distinction, between general and uterine hæmorrhages.

Uterine Hæmorrhage.—Uterine hæmorrha upon gestation may be considered analogous to exhalation, and the same principles of treatme to it. Uterine hæmorrhage at the early more arises from rupture of some portion of the vasce ultimately forms the placenta; it may, there under the second division of hæmorrhages, and coagula, as well as by lessening the force of order that these vessels may more efficiently conselves. But when flooding occurs at the time are special conditions then only existing, ox circulation, which make a very essential difference of the hæmorrhage, and in the mann controlled.

Dr. William Hunter observed, that "there in which the gravid uterus differs more pregnated than in the size and termination of uterus, at the period of parturition, is, theref from its ordinary condition. Let us brief peculiarities.

- The womb is enlarged to its greatest exterior are proportionately increased; the arteries in or placenta are specially enlarged: and hence wes blood appear to be much more numerous wher attached.
- The arrangement of the vessels of the from that of the arteries and veins in other ps consequently, the manner in which bleeding fro is not exactly the same.
- 3. The circulation going forward in the place of the general circulation, must be considered its object. The quantity of blood in the uter far beyond what is required for the nutrition of may be increased or diminished, within certain disturbing the general circulation. The contribe almost emptied of its blood without affecting if hamorrhage exceed this point, if the uterus

mand be made to supply the deficiency, then the circuat once reduced to its lowest degree, and the constitution
a shock proportionate to the magnitude of the demand.
ine vessels are precisely adapted to meet this condition,
ey are completely filled, a very large quantity of blood
s through them for the nutrition of the fœtus; but when
o longer required, efficient measures are provided for
ing their size, and so interrupting the current of blood
uce the draught on the general circulation as nearly as
to that required by the unimpregnated uterus.

ation in the Uterus. The arteries of the gravid uterus are acreased in size, and "all through the substance of the here are infinite numbers of anastomosing arteries, large l, so that the whole arterial system makes a general netd the arteries are convoluted or serpentine in their course." Hunter's Anatomical Description, etc., p. 17). lood is thus conveyed to and contained within the uterus, an could be effected if their course were more direct: sels can adapt themselves better to the constantly varying ne uterus, when in the act of expelling its contents, and nt of blood is more efficiently controlled; because, when s contracts, the spiral coils of the arteries are more n themselves, and the impetus of the blood is diminished. ible, also, that the surrounding uterine fibres may so the arteries as to interrupt the circulation through them y, by rendering the points of reflection in the arteries gular, so as to give them a zig-zag rather than a spiral

orrhage, which is not employed in other arteries.

ins of the uterus (fig. 127) are still more remarkable in liarity of their arrangements, as compared with other Their relative size to the arteries is greater: they are of a number of large, short trunks, communicating with each other, and forming an irregular net-work of the capillaries greatly magnified: their coats are single, I only of the lining membrane of the veius, which is

You perceive, therefore, that by this mechanism the a new power is introduced for the purpose of suppressintimately adherent to the fibrous tissue of the have no valves; therefore, when the veins are disterterrupted current of blood flows through them; be rounding fibres contract, temporary valves are

Fig. 127.\*



break off the communication between these Their course is extremely oblique, nearly parallel of the uterus; so that the veins may be descing layers or planes of veins freely communicat other.

Mr. Owen has made a careful examination of t portion of the gravid uterus furnished him by "commenced the dissection from the outside, ren sively, and with great care, the layers of fibres, as veins as they passed deeper and deeper in the su uterus, in their course to the deciduous membrane

<sup>\*</sup> Fig. 127. Veins of uterus.

traced to the inner surface of the uterus, appeared to tere in an open mouth on that aspect: the peripheral portion coat of the vein or that next the uterus ending in a welland smooth semicircular margin, the central part adhering being continuous with, the decidua. In the course of the tion I" (Mr. Owen) "observed that, where the veins of nt planes communicated with each other in the substance walls of the uterus, the central portion of the parietes of perficial vein invariably projected into the deeper-seated and where (as was frequently the case, and especially at the of termination on the inner surface) two or even three of wide venous channels communicated with a deeper sinus at me point, the semilunar edges decussated each other, so as to only a very small portion of the deep-seated vein to be seen. scarcely be observed, how admirably this structure is adapted rethe arrest of the current of blood through these passages upon ntraction of the muscular fibres with which they are everyimmediately surrounded." (John Hunter's Works, by Palmer, ., p. 68). Professor Goodsir repeated this dissection, and obthe same appearances (Anatomical and Pathological Obsers, p. 61). Professor Simpson also made a similar examination, bserved that, "when a venous tube of one plane comes to unicate with a venous tube lying in the plane immediately th it, the foramen between them is not in the sides, but in or of the higher and more superficial vein, and the opening is of a peculiar construction. Looking down in it from , we see the canal of the vein below, partially covered by a mar or falciform projection, formed by the lining membrane e two venous tubes, as they meet together by a very acute -the lower tube always opening very obliquely into the In the folds of these falciform projections the microscope the common contractile tissue of the uterus," (Northern Journal dicine, January, 1846.) This evidence is sufficient to prove trangement of the uterine veins, and the influence of this gent-the contractile fibres of the uterus-in controlling amorrhage that may flow from them. When the uterus acts, these semilunar edges are converted into valves, and

where numerous short trunks intersect each other, if these valves completely closes the communicativessels; but when the uterus is relaxed, there is to the current of blood through the veins, and uterus in this state may be compared to a large special, while the same sponge strongly compressed the dual will illustrate the effect of uterine con oblique direction of the veins very much contenfect; because, where two trunks meet at a very requires only a slight contraction of the uterus to par the point of junction, and, if the contraction connection is broken of.

Corn to a in the Placents. As the arteries much more numerous in the neighbourhood of the thie chief cause of uterine hamorrhage is the par fithat vascular mass from the surface of the ut recessary to examine the connection between bounderstand the manner in which the blood circ

F c. 128.\*



\* Fig. 128. Placenta. Fatal surface.

the placenta, and how this hæmorrhage occurs. This question will require your especial attention, because its demonstration is by no means easy: and hence it seems to be the rock upon which more than one ingenious theory of the causation of hæmorrhage as suffered shipwreck.

If the uterine side of the placenta be examined, you perceive a boulated surface composed of an immense congeries of fœtal scales compacted together into cotyledons. This surface is





walls of the uterus as to close the venous openings on its urface, without having any direct connection with them. The parenta may be peeled from the uterus more easily than the rind an orange: no vessels seem to be broken, and the venous puings are freely exposed by the separation.

The natural inferences from these facts would be, that the centa belongs altogether to the fœtus; that no maternal blood was into it; and that any interchange between the blood of the and the mother takes place only at the surface of the uterus, which the placenta is applied like a cake of unbaked dough.

<sup>\*</sup> Fig. 129. Placenta. Uterine surface.

Such had been, and is even still, the opinion of sor its inaccuracy has been clearly proved by observwe shall presently refer.

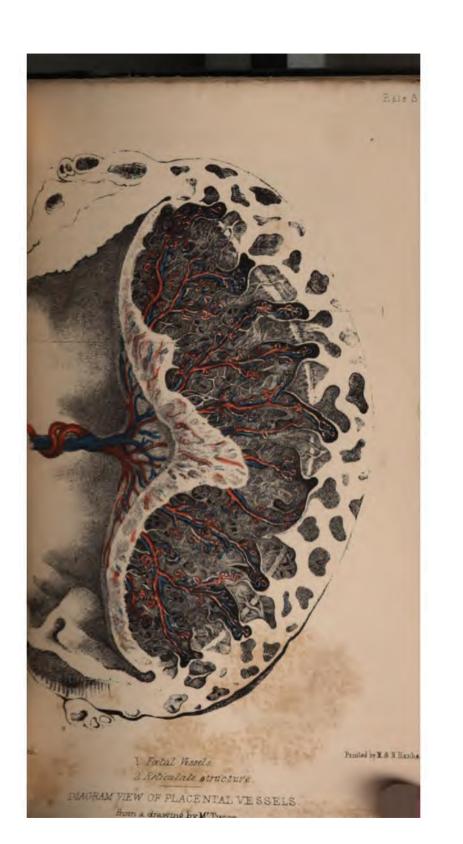
Many years ago, the Hunters demonstrated the from the uterus into the placenta, and the beautif benind them still remain to testify this fact. Sin attempts having been made to repeat these injection success, incontrovertible evidence seemed to be aff of the opinion that the placenta was entirely a The injections, and the doctrine founded upon ! sidered to be equally fallacious. Such was at opinion of Dr. Robert Lee; who has since, ho his error, and has pointed out the means by which " It would be erroneous," he observes, " to con ten years ago, from similar failures" (in injectio circumstances, that the maternal blood does not news structure of the placenta by the decidual as back by the decidual veins into the venous system as first deminstrated by John Hunter . . . The : nation of the uterus and placenta in their natu water, and when the uterine vessels were filled having led to no conclusive and satisfactory rest to me seen after the publication of my paper in the Transactions, in 1832, that the most likely mean the real connection of these parts would be I placenta when the vessels of the uterus were f own blood and coagulated. . . . . I was able self and Mr. Lawrence, who was present at th

John Hunter found that he could not trace ei veins distinctly as vessels beyond the surface of

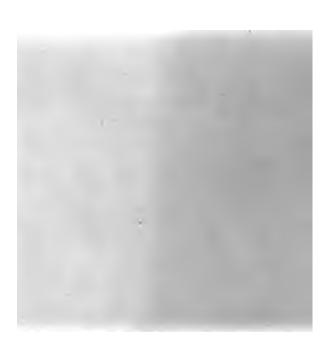
placenta."

that coagula of the maternal blood extended free openings in the lining membrane of the uter formed by the deciduous membrane on the

<sup>\*</sup> See A; penda.







at they then entered into a structure which he compared to the pus cavernosum penis. Professor Goodsir, the latest observer, ds the same appearances. Making a dissection of the uterus the manner of Mr. Owen, he says:- "In my progress I occanally found that, when the probe was pushed along an unened vein, its point appeared at another opening; and as I proached the internal surface of the wall of the uterus, these astomoses of the veins became more numerous, the spaces nich they inclosed presenting the appearance of narrow flat nds. At last, in introducing the probe under the falciform ges of the venous orifices, it was found to have arrived at the scental tufts, which could be seen by raising the falciform ges. Having passed over the falciform edges, the venous memane suddenly passed on each side to the great cavity of the plata. The flat bands which I have just described as the spaces closed by anastomosing venous sinuses became smaller, and on tering the cavity itself, the bands were seen to have assumed the pearance of threads, which passed in great numbers from the scular edges of the venous opening, and from the walls of the vity of the placenta, on to the extremities and sides of the villi d tufts of the placenta. The whole mass of spongy substance, it is, the whole mass of tufts, were in this manner perceived to attached by innumerable threads of venous membrane to that face of the parietal decidua of the placenta which was covered the venous membrane. On proceeding deeper into the subnce of the placenta, I perceived that, throughout its whole ent, villus was connected with villus, and tuft with tuft, by Mar threads of venous membrane." (Op. cit. p. 61).

These reticulate threads form the cavernous structure of John mer: thus you perceive that the first and the last inquirers of this subject are nearly agreed in their description. Professor odsir has used a very happy expression, "the great cavity of placenta"—a cavity, it is true, filled up by the aggregate to of feetal vessels, just as the great cavity of the peritoneum ms filled up with viscera and intestines, but which cavity, rertheless, exists. Into this cavity the maternal blood is used by the curling uterine arteries, and from it the blood

returns into the uterine veins; no feetal blood enters into it. But to place the relation of the maternal and feetal vessels in a clear light, we shall quote Weber's description of their arrangement. He says:—

"The whole placenta, and therefore every individual lobal entering into its structure, consists of two distinct parts; th one a continuation of the chorion and vessels of the embry the other a continuation of the membrana decidua and vessel of the uterus. From the chorion, for instance, dendritic pro cesses or elongations are sent out, which, in small ova about month old, are seen so small and simple, that they are calls villi, but which grow by and by into large and numerously divide stems and branches. Into each of these dendritic processes the chorion there penetrate a branch of the umbilical arter and a branch of the umbilical vein. Both vessels divide in branches, in the same manner as the processes of the chorion i which they run. Each particular trunk, with its divarication of the shaggy chorion, forms a lobe or lobule of the placents which is covered by the tunica decidua. To this investment many of the terminal branches of the chorion will be found ! have grown. It is in the spaces between the divarications of the chorion that those vessels run which transmit the blood of th mother, and which are prolongations of the uterine arteries an veins: they penetrate in this way even to the most minute lobal of the chorion. The object of this structure seems to be, the the minute, convoluted, greatly elongated, and extremely this walled capillaries in which the blood of the fœtus is circulating may be brought into the most intimate contact possible with th larger, but everywhere excessively thin-walled canals, in which the blood of the mother is flowing, that the two currents, without interfering with each other's motion, may pass each other to a great an extent as may be, with nothing interposed but the delicate parietes of each set of vessels. The uterine arteries and veins, once they have entered the spongy substance of the placenta do not further divide into branches and twigs, but immediately terminate in a net-work of vessels, the canals of which are of far too large diameter to permit them to be spoken of as capillaries, and which the parietes are so thin, that they cannot be shewn that by the most careful dissection. This vascular rete which connects the uterine arteries and veins with each other, completely fills the spaces between the branched divisions of the durion, and the extremely thin parietes of the canals of which it composed insinuate themselves at all points into the most inimate contact with the branches and convoluted masses of the upillaries of the umbilical system of vessels. This net-work of the passage of the uterine steries into the uterine veins, performs the same office as a rete of true capillaries, so that it may be regarded as a rete of colossal application." (Wagner's Elements of Physiology, pp. 201, 202, note).

On a question of so much difficulty, and one which has been so such misunderstood, we have preferred to give you the descriptions of the best and most careful observers, rather than our own, -to adopt their language as being the least likely to be disputed. These quotations are sufficient to prove that there is a portion of the placenta in direct communication with the uterine vessels, which has been described by Weber as a rete of colossal capillahes, by John Hunter as a cavernous structure, and by Goodsir a great cavity everywhere traversed and intersected by filamentoes prolongations of the lining membrane of the uterine veins; that the maternal blood is impelled through innumerable uterine arteries into the great cavernous cavity of the placenta, and, having supplied the necessary nutriment to the feetal blood, flows back through the large oblique canals that communicate with, or are part of, the uterine veins; that these venous canals and the cavernous structure are composed of a tissue of extreme delicacy; and lastly, that there is no direct communication between this maternal circulation of the placenta and that going forward in the focus. What, then, would be the effect if this vascular connection between the placenta and uterus were broken through?

Partial Separation of the Placenta. From the nature of this injury, the torn curling arteries might not pour out much blood (See Appendix). Any hemorrhage must arise chiefly from the

broken veins, and not, recollect, from one, but j divided extremities. There are thus two sources f escapes: 1. The openings that communicate wi of colossal capillaries, by which the cavernous struof maternal blood, to be again filled by the uterinmay therefore be considered as arterial hæmorrh;



The maternal blood flows from be the material blood flows from be the content of the former instance in the former instance in the former the cavernous and the cavernous of the the former the possibility land the late Dr. Hamilton stated the cavernous has since with so n

A A total current through places of the Salary Sala

but which still remains an enigma to perplex some writers subject—that, when the placenta is partially detached from rus, blood flows from its denuded surface, and the exposed veins (or sinuses, as they are called), are not the only of uterine hæmorrhage. When the placenta is completely red from the uterus, and its connection with these arteries off, you can also perceive that blood will no longer flow-resurface; and the only blood that can then be expressed, is the residue lodged in the cavernous structure of the

ral Provisions to Check Hamorrhage from Partial Separathe Placenta. The arterial discharge through the cavity placenta can only be controlled by coagulation of blood in is of its cavernous structure. This is greatly promoted nature of this structure, as well as by the slow progress circulation through it. The spiral course of the arteries the impetus of the circulation; and when their tortuosity eased by the contraction of the womb, the current of blood sted, and coagulation takes place. The contraction of the fibres exerts a still more important influence in arresting scharge from the exposed veins; because, as is evident heir anatomical relations, the connection between the veins en off by temporary valves, the flattened trunks are com-, and regurgitation of the blood is prevented. The importmy the necessity, of this new agent, to prevent the occurof hæmorrhage from the uterus, is, we trust, sufficiently

to we have directed your attention to the effect of a partial tion of the placenta from the uterus, which is the most on cause of hæmorrhage before the birth of the child. Let robserve the results of its complete detachment, such as place after the birth of the child, whether it be retained in vity of the womb, or be expelled from it. If hæmorrhage then arise, the chief source of the discharge is the venous age of the uterus. The slender lacerated arteries are not to produce the violent flooding sometimes observed; nor

can we direct you to any other means of pre securing an efficient contraction of the uterus objected to this principle-and the difficulty or mind of Gooch (Account of some of the more i Women, p. 832)-that you may have relaxation out any hamorrhage, and conversely a profus uterus is firmly contracted. It is necessary t may be, and how far it interferes with what I It appears, then, that hæmorrhage must be t plete relaxation of the uterus. But there are hæmorrhage may not occur when the uterus -a very common condition after the birth instance, you will frequently meet with o delivery, the placenta lies loosely in the ca which may be large, imperfectly contracted, commonly called "relaxed," and yet no hæme it. If the fundus be firmly compressed, and cient contraction be secured, the placenta is a greater or less quantity of coagulated bloc hæmorrhage take place?

hemorrhage take place?

First. Because the uterus is not perfectly contraction of the uterus is sufficient to raise and thus partially, but not completely, to close between the different venous trunks. The re-

is at least retarded, although not altogether pure Secondly. The current of the uterine cirr both in direction and in force. The arterial drawn towards the cavernous structure in the into the intercommunicating branches in the uterus. The current of the venous blood is of rapidly towards the great central trunks of the these vessels are now relieved from the presuterus, and, by their expansion, the venous bl

Thirdly. The venous openings on the surface not at all freely exposed: on the contrary, they and covered by fragments of the deciduous me

strongly from the terminal branches towards t

of feetal vessels, and by small coagula resting within them, acting as plugs, which, it appears to us, would be quite that to prevent the escape of blood when the circulation is irected strongly towards the uterine surface.

morrhage is not, therefore, the necessary consequence of artial relaxation of the uterus after labour: something more uired to cause regurgitation of the blood to the amount of a flooding. We know, from the coagula expelled, that some gitation always takes place; but, so long as they do not become so firritation, they are not accompanied by flooding.

the uterus is strongly contracted, flooding takes place. We the perceive the difficulty which this fact seems to present. Is uterus of the uterus the only cause of hamorrhage? or are other causes which may produce it? We shall mention a there may be more.

agments of the placenta are frequently left behind in the , which afterwards separate without any hæmorrhage ring. But this does not always happen. One of the few cases of uterine hæmorrhage that have fallen under our depended on this cause. A woman had been safely red; the placenta was expelled into the vagina, and partly uded through the vulva; the attending midwife removed it orcibly; hamorrhage followed. When we saw the patient, lacenta was taken away, and had not been examined. The was firmly contracted to its usual size after delivery: theless, blood continued to drain from the vagina, and ately increased to flooding. In spite of every means that sed, exhaustion and death took place. One means was, ver, omitted, in consequence of the contraction of the uterus: and was not passed within its cavity, which the sequel d to be an unfortunate omission. A small portion of the nta, of about the size of a crown, was attached to the back uterus near the cervix.

ght lacerations of the uterus frequently occur, and these somecause hamorrhage, although the uterus is contracted.

Dr. Rigby quotes Naegele's experience of this source of flooding, as the result of a practice which we shall have again to consider "Cases" (of placental presentation) "have occurred, where the child was turned and delivered with perfect safety, and the uterus contracted into a hard ball: in fact, everything seemed to have passed over favourably; a continued dribbling of blood had remained after labour, which resisted every attempt to check it: friction upon the abdomen, and other means for stopping hæmorrhage, by inducing firm contraction of the uterus, were of as use, for the uterus was already hard and well contracted: the patient had gradually become exhausted, and at last died. On examination after death, Professor Naegele has invariably found the os uteri more or less torn." (Rigby's Midwifery, p. 259). In the case quoted by Gooch, there was an unusual excitement in the general circulation previous to labour, which he assigns as the cause of the hæmorrhage.

Morbid growths also, either from the surface or in the parietts of the uterus—intra-uterine polypi, for instance—may maintain hæmorrhage when the uterus is contracted.

But are these exceptions—and, we think, rare exceptions—to a general rule, to be considered sufficient to overturn a principle that has been founded on such clear anatomical evidence, and has been proved by daily, almost hourly, experience? Are we to say that, because hæmorrhage does not always depend upon relaxation of the uterine fibres, their contraction is a matter of no importance? If we were to lay down such a proposition, we should lead you into an error that the first case of hæmorrhage with which you might meet would expose; where you would find that flooding continued while the uterus was relaxed, and that it ceased the moment the hands were placed firmly on the fundus to secure its uniform and complete contraction.

Reciprocity of Uterine Atony and Hamorrhage. We have stated to you that relaxation of the uterus is not the only cause of hamorrhage, neither is hamorrhage the only cause of its relaxation. Atony of the uterus may arise from constitutional debility, prolonged labour, and other causes beside hamorrhage; and, therefore, you can perceive why in such instances flooding

my be increased by this weakened condition of the uterus, and arciprocal effect produced; want of tone in the uterus causing amorrhage, and hamorrhage increasing the atonic condition of the womb.

We trust, then, that we have succeeded in proving-

- 1. That the anatomical relations of the uterine arteries and mins to the contractile tissue of the uterus are such, that the circulation through these vessels can only be controlled by the intraction of its fibres; and that every provision is made to reder even slight contractions of the uterus a means of motivating the force of the uterine circulation, and preventing a argumentation of blood.
- 2. That the mode of controlling and arresting uterine hæmorthage differs in this respect from that employed in general hemorrhages; because, while bleeding from the general circulation is controlled by a power inherent in the vessels themselves and independent of the surrounding tissues, in uterine hæmorrhage in the reverse.
- 3. That it is quite possible that the uterus may expand without hamorrhage taking place; and conversely, that there may be flooding when the uterus is contracted; but those treeptions do not invalidate the general principle, that contraction the uterine fibres is the essential means of arresting uterine traverhage.

## LECTURE XXV.

UTERINE HÆMORRHAGE (continued).

befrence of the Nervous System on the Uterine Circulation. We be explained the means provided by Nature to prevent emorrhage from the uterus: they present an illustration of exchanical contrivance equally interesting with that observed in

natural labour; but, beautiful as is the adaptation of mechanical principles to the purpose they are designed to accomplish, I cannot permit you to look on the uterus as being in this respect a piece of mere mechanism. The womb is a vital machine, and all this ingenuity of contrivance is subordinate to, and governed by, the vital principle that regulates its movements. Unless we observe the influence of this power, and understand the importance of preserving its integrity, we shall fail in comprehending in their full extent the principles on which the correct treatment of uterine hæmorrhage is founded. We have now to examine the uterus as a living organ, and to consider the influence of the nervous system in aiding or preventing the efficiency of that mechanism to which we have alluded. Such is the direct relation between nervous power and muscular contraction, that a deficiency of one necessarily leads to an imperfection or absence of the other; and consequently, if the nerve-force be weak, the uterus will not sufficiently contract, and hæmorrhage must be the result.

The connection also between the nervous and circulating systems is, if possible, still more intimate. The blush that suffuses the cheek, the syncope resulting from the shock of unexpected intelligence—are so many evidences to prove the influence of the nervous system over the circulation. Shame will cause a blush: shame will also excite uterine hæmorrhage. A remarkable example of the certainty of this fact has been stated to us by our friend Mr. Forbes, with whose permission we will relate it.

A patient of his was taken in labour, August 28th, 1845, and delivered on the 29th, after seventeen hours' labour, of a living male child. The placenta separated without hæmorrhage, and everything went on well until September 8th, ten days after delivery. At that period, the uterus was reduced to its usual size: the woman had been sitting up for two days, without any inconvenience or alteration in the lochial discharge. On the morning of the 8th a most violent flooding took place, accompanied by extreme exhaustion, from which the patient was recovered with the utmost difficulty. A difficulty quite as great was to ascertain the cause of the flooding—so violent, and occurring so long after

delivery. It was revealed by mere accident. It appeared that surly on the same morning a former lover made his appearance this most inappropriate time: the surprise of both can be conceived; but the effect of the violent mental shock on this patient we the hemorrhage that followed.

Influence of Uterine Hamorrhage on the Nervous System. The preeding case, we trust, sufficiently proves the influence of the process system over the uterine circulation. This influence is preedly reciprocal: we find that one of the first effects produced by flooding is a diminution of nerve-force, and consequently a tentercy in the uterus to relax. Another effect is increased excitent both in the nervous and circulating systems: the patient is note watchful and restless, the action of the heart more hurried, and the circulation again directed towards the cavity of the terus. Hæmorrhage is therefore increased; but you must not without this effect solely to relaxation of the uterus. Here, as dewhere, there is a molimen hæmorrhagicum; congestion takes place, and (as it appears to me) the uterine arteries pour out quite a much blood as regurgitates from the veins.

A third, and the most fatal, effect of hæmorrhage is a total of nervous power, by which the uterus is completely relaxed, foding is uncontrolled, and convulsions, the precursor of death, the a fatal evidence of the shock to the nervous centres. If you berve the symptoms that accompany uterine hæmorrhage, you an easily trace them to this cause, and you will find that they blicate these changes in nervous influence. Take, for instance, sease of post partum hæmorrhage: flooding may commence with mly a slight draining from the uterus, or perhaps coagula may brm in its cavity; no impression is as yet made on the nerves; Pesently the uterus loses its firmness, and feels spongy, or rather like dough; the bleeding increases. In consequence of this partial relaxation, the nervous system is excited; the pulse becomes rapid, and assumes the hæmorrhagic character; the thent grows restless, sighs frequently, or yawns, and is anxious or air; and then often comes the frightful deluge that places her at once in the grasp of death. A prolonged syncope is succeeded by increased restlessness, amounting to jactitation; respiration

becomes extremely laboured; retching, blowing of the cheeks, and convulsions of all the voluntary muscles, with atony of the uterus, prove the complete loss of nervous power, and close the scene.

In all this train of symptoms, the gradually increasing excitement and subsequent depression of the nervous system may be observed; and hence the necessity of strict attention to remedy this condition in any plan of treatment that is adopted.

TREATMENT OF UTERINE HEMORRHAGE. From these general observations you will perceive that, in the mode of arrest, uterine hæmorrhage differs essentially from hæmorrhage in other parts of the body. In the latter case, as we have shown, the exposed vessels have inherent provisions for retarding the escape of blood. In the uterus, the arrest depends altogether upon its contractile tissue; and hence, as in general hæmorrhage one of the greatest objects of treatment is to cause contraction in the coats of the vessels themselves, so in flooding from the uterus the chief effort is to excite and to maintain the contractility of the uterine fibres. In consequence of this intimate connection between the vessels of the uterus and its muscular fibres - the absolute dependence of the former on the latter-it is essential in the treatment of floodings to pay much more attention to causes that impair muscular contractility, than is required in the treatment of other hæmorrhages. The nervous energy of the uterus must be preserved; and for this purpose a line of treatment is called for that would be quite inapplicable in general hæmorrhage.

In order to illustrate this principle, we shall direct attention to the different agents and therapeutic remedies employed—first pointing out those that are applicable to general hæmorrhage, and then contrasting them with such as control flooding from the uterus.

Syncope is a natural provision to relieve a bleeding vessel from the momentum of blood propelled into it by the heart: it is therefore a very efficient means, in general hæmorrhage, of promoting coagulation of blood, of causing contraction in the coatof the vessel, and, therefore, of arresting the discharge; but, is floodings, syncope is frequently a most dangerous symptoms finting is much more prolonged in the latter than in the former instance, and sometimes the patient never recovers from it. Syncope will not cause the uterus to contract; and the only useful effect it can produce in uterine hæmorrhage is, by suspending the heart's action, to give a temporary check to the discharge which returns instantly with the pulse. The tanger of syncope in uterine hæmorrhage is its duration; the heart may cease to act altogether: we are therefore often obliged to use stimulants to prevent this, and to restore the circulation.

Coagulation of Blood is the chief agent by which, as we have aheady explained, Nature closes a wounded vessel, and prevents effusion of blood. Its efficiency in lacerated arteries is frequently wident; but, in flooding, coagula have no such effect: they are washed away with the torrent of blood that gushes from the womb when it loses its contractile power-nay, they may increase morrhage, and convert a slight draining into a serious flooding. For instance, a small coagulum may form in the cavity of the Merus, and gradually increase; the uterus becomes irritated by the distension of its parietes, and renews its action: its contaction is followed by relaxation of the uterine fibres, and an prease of the discharge; the uterus still further expands, till at both its cavity is filled by an enormous mass of coagulated Wood, attended with the most aggravated symptoms of exbaustion in the patient. The beneficial effects of coagula are sherved when they are subordinate to uterine contraction: they then close the venous openings on the surface of the uterus, and powent the slight regurgitation of blood which may take place: becorringe from the uterine arteries is also prevented by this mans.

You perceive, therefore, that these natural means for matualling non-uterine hæmorrhage may have the most opposite fact upon uterine flooding. The same contrast may be observed a therapeutic remedies.

Depletion is frequently employed in general hæmorrhage—for importance, in epistaxis—because, the impetus of an over-excited important being diminished, coagulation readily takes place in

the open vessels, and their coats more easily contract the effect in uterine hæmorrhage? We admit that a certain cases, in which women of a plethoric habit and it circulation require depletion to prevent hæmorrhage, and even bear the loss of blood in this way after it takes p if you reflect on what has been already stated, you will that in uterine hæmorrhage, such as usually occurs at a of delivery, depletion can accomplish no such purpose contrary, it may be highly injurious to the patient when a large demand has been already made by the the circulation, if it be still further reduced by a loss of the power of the nervous system will be diminished in proportion, and the energy of the uterus may be so that uterine contractility is destroyed. The judicious protherefore, never employs depletion to arrest flooding uterus.

Cold is another agent of great utility in all ham nevertheless, it is necessary to exercise some discretion ploying it in floodings. In other hæmorrhages, the refi effect of cold is serviceable, because it both checks th of the local and moderates the force of the general cir consequently it aids very much in promoting coagula constringing the bleeding vessels. The effect, however, means the same in uterine hæmorrhage: local refrige useful; but, if cold be employed generally, and the circu lowered by it, the danger of the case may be greatly it Judging from some opportunities we have had of witness effect, we look upon general refrigeration with great a sion; the circulation may never recover itself: but if contrary, the chilling effect be confined to the uterus alor the circulation is supported, it becomes very efficient. C be employed, also, on another principle—as a stimulan uterus: in this way its beneficial effect is most remarkable centractile power of the uterus is often so impaired by tioning, that it is extremely difficult to excite its action such cases, a stream of cold water poured from a height abdomen over the uterus, or injected into its cavity for

will stimulate it to contract; but, even when it is emn this manner, a strict attention must be given to support on of the heart. This principle did not escape the attenthe observant Gooch. He mentions the case of a lady e attended, in whom, both before and at the time of the force of the circulation was very great: "she was and had a quick pulse." After delivery she had a most looding; and Gooch remarks that, "After the violence emorrhage was over, although the abdomen was covered inded ice, it returned again and again, slightly in degree, ciently, in the debilitated state of the patient, to produce occurrences of faintness; the uterus, too, which had firm and distinct, became so soft it could no longer be . . Finding the ice so insufficient I swept it off, and, ewer of cold water, I let its contents fall from a height al feet upon the belly: the effect was instantaneous: the which the moment before had been so soft and indistinct be felt within the abdomen, became small and hard, the stopped, and the faintness ceased-a striking proof of ortant principle, that cold applied with a shock is a more l means of producing contraction of the uterus than ter degree of cold without the shock." (Op. cit. -339). We might also add, that this case is an equally I evidence of the importance of uterine contraction in g hæmorrhage.

on, have little power in floodings. The mineral acids, of lead, and such like remedies, are almost useless; can caustice be beneficially applied: we shall not, there-ell upon them, but proceed to the consideration of those es and other remedies that are essentially required in s, some of which are quite inapplicable in general hamor-

dants are almost indispensable in uterine floodings; they e most mischievous in general hamorrhage. Why is it is necessary to call to mind the principle which we have ured to prove, and to impress upon your attention—viz.,

that flooding can only be efficiently controlled by contra Assuming the truth of this propor the uterine libres. follows, that a most essential point of practice must be t tain the contractility of those fibres: now nothing s impairs this contractile power as extreme loss of blood, the nerve-force of the uterus becomes exhausted in prope the general circulation is reduced, and its relaxation is quently increased. The quantity of blood impelled by t may be only just sufficient to support feebly the vital fi the attention of the nervous system (to use figurative h is directed entirely to maintain the efficiency of those fi and its influence over those which are more distant and a gradually disappears: muscular contractility is, there in order to correct this condition, it is nece stimulate by artificial means the action of the heart, s me, comy on the circulation; and hence the use of sti Wish this object in view, it is essential to preserve the ! there of the extremities; in fact, to use every means in you w wake the small quantity of blood circulating thro xxxxc::: answer the purpose required of it.

While efforts are thus made to maintain the general fation, it is no less necessary to supply the deficient energy of the uterus; hence stimulants are used locally thereine contraction, and of these, such as act most dit the nerves of the uterus are always the most efficient. Cold excites a shock; when the introduction of the hand uterus causes irritation of its nerves; when an electric is passed through the uterus—in all these cases, contrathe uterus follows, provided that the action of the heart tained.

Opium is another remedy of essential value in uterine rhage, but one whose agency seems to me to be much m stood: it is chiefly viewed as a sedative, and its use is lest it may prevent contraction of the uterus. The paralteen proposed, How can opium cause the uterus to con harmorrhages, and to relax in other cases; for instance given for this purpose in arm-presentations? The same

not produce opposite effects on the same structure. In this ry, the condition of the nervous system, a most essential ment, is totally overlooked; and the influence of opium, when yous irritability is almost exhausted, is compared with its cts when the same power is excited to the greatest degree. It ssumed that the operation of opium must be the same when uterus has lost all power to contract, and when it is conted spasmodically. The question, therefore, may easily be wered by stating that opium is both a stimulant and a seda-; and that one effect or the other is produced, according to relation existing between the nervous energy of the uterus, the dose of the medicine given. If nervous irritability be impaired, or if it be increased, a very small dose of opium stimulate, while a larger one will exhibit its sedative effects; if, on the contrary, that irritability be destroyed, and the us atonic, the same large dose will only act as a stimulant, will the sedative property of the medicine be observed until yous energy is restored.

the truth of this fact we have frequently observed in cases of the flooding. The usual dose (m xxx.) of tincture of the mass been repeated again and again, before any effect was the uter of the uter of the patient. As soon, however, as the nerves were roused to activity, then the uterus began bey the stimuli employed for its contraction; the pulse to the respiration to become more easy; the restlessness of patient less. And, in proportion as nervous influence was a sound and tranquil sleep, even for a short time, was the total certain evidence that the contractility of the uterus had med, and was the most favourable symptom of the patient's transport of the medicine became manifest:

a the use of opium, therefore, strict attention should be paid be degree of hæmorrhage, and to its effect on uterine contracp. When the loss of blood is slight, or at least not sufficient apair the tone of the uterus, a large dose of opium would langerous, lest it might act as a sedative, overcome the intense of the nerves, and cause the uterus to relax. When the loss is great, and followed by exhaustion of the uterus, the very same quantity of the medicine will produce an of effect: it will act as a stimulant, and cause contraction uterus.

Ergot of Rye is perhaps the most popular remedy in hemorrhage, because it is a specific stimulant of the use excites contraction of its fibres. Its popularity, however to a very indiscriminate use of the medicine; and, then successful, it just as frequently has failed in its effect. deal of this uncertainty is attributable, it is true, to the quality of the drug; no medicine is of more doubtful bu: we think that its failure in extreme floodings arises, cases, from a misapplication of it. It is given as a spec is is impossible that any specific effect could be produ order to excite the action of this, or of any other mei nervius system should be capable of conveying the impressions: but when this is not the case, secale cannot stimulate the uterus; nevertheless, if it regain bality, or if ergot be given before the uterus has lost it efficiency case its efficacy is undoubted, and it may be employed. Assuming this explanation as true, ergot of be statusted with opium. When the nerves of the ut kes their natural irritability, and the uterus is in a state cycum is the most efficient excitant to its action, because acts upon these nerves as a most powerful stimulant; that irritability is restored, or if it be only slightly in acts as a sedative, and may paralyse the uterus. Erc at the contrary, is quite inefficient in nervous exhaust reterns: because, so far from acting as a stimulant, it have a sciative effect (at least upon the heart), while i somet is obvious the moment that exhaustion is Occar is therefore of the highest value in saving a parthe accessorements of extreme flooding; ergot of tye, in ; such hemovicage from taking place. Both remedies used in the same case; but one can never supply the the other.

The explanation of the action of these medicines in

rine hæmorrhage that has just been offered, may, like every ber medical theory, be controverted; and, however much we ght be convinced of its truth, we should fear to found any actical rule upon it, did the certainty of the rule depend upon a truth of the doctrine: but the case is reversed—the theory founded upon practical observations that we have frequently at the opportunity of making. Cases have occurred in which the remedies, administered in the manner stated, have produced to effects described. We have therefore the less hesitation in fering a theory which, whether true or false, can make no duration in the rule that it is intended to explain.

Electricity is an agent that had been suggested some years ago Dr. Ramsbotham, and has been introduced by Dr. Radford, means of exciting an atonic uterus to contraction, and thus mating hæmorrhage. The principle upon which electricity as is quite consistent with the views we have endeavoured to w before you; there is no stimulant more energetic in exciting escular contractions than electricity: none has a more powerful minence on a torpid nerve. It is reasonable, therefore, to infer. Int no means could better excite a dormant uterus into active intractions. Reasoning in this way, Dr. Radford applied the letric current, first to the bladder in a state of atony, and then whe flaccid uterus, in several cases of hæmorrhage, with comthe success. It produced not only tonic contraction, "but it also the power of energetically exciting alternate contraction then applied at intervals." "The alternate contraction," he Mys, "excited by the agent is analogous to, and as powerful as. that which is observed in normal labour, and the tonic contraction prater." (Provincial Med. and Surg. Journal, Dec. 24, 1844, p. 603). Mr. Dorrington (Ibid, March 11, 1846, p. 105); Mr. Wilson (Ibid, April 29, 1846); and Mr. Clarke (Dublin Hospital Gazette, March 1, 1848), all quote cases confirming Dr. Radford's experience.

Direct Irritation of the Uterus is a most efficient aid in prometing its contraction. Friction over the surface has constantly been observed to excite contraction of its fibres; but so slight an irritant frequently fails in arresting hæmorrhage, simply because

it is only partial in its effects: it does not secure an uniform equality occurrection. For this purpose, strong compression one or hoth hands on the fundus, and irritation not only anterver has of the posterior surface of the uterus, are essen secure the object. It is often necessary to maintain this st a continuance of very strong pressure afterwards, to whi shall have again to refer. The introduction of the hand is namely of the uterus is a practice founded on the same pri This manipulation causes great irritation—sometimes to irritation; and therefore, requires prudence and caution adeption. In cases of great exhaustion, I have known it it by ecrevalsions and death; but in other instances it prov only means (accompanied by external pressure) of caus uniform and efficient contraction of the uterus. Much d on the condition of the patient. When it is adopted as a resert to excite a flaccid uterus, the shock of the operation times overcomes the patient, already in the last stage haustion, and she never rallies. Such an application means is therefore extremely dangerous; but when the u in a semi-contracted state, possessing a certain degree ( tractility, the hand may be introduced with benefit. The which is often only partially and irregularly contra restored to its proper order of contraction; and when the is supported by external pressure, the hand is expelled, hæmorrhage ceases. Dr. Gooch recommended the intro of the hand for another purpose: he supposed that the might be compressed against the walls of the uterus, and rhage thus stopped. We confess that we cannot see the tage of this practice: passing the hand into the cavity uterus is no trifling operation; but if you undertake itsucceed and reach the placenta—if it be detached—why Another mode of direct irritation of the cavity it away? uterus is the injection of iced water: it has been strongly mended by Dr. Tyler Smith, and is especially applicable! cases of extreme exhaustion where the hand cannot be iuced.

impression of the Aorta has been proposed by Baude

and highly recommended by M. Chailly, as a means of arresting amorrhage. The aorta is compressed just above the bifurcation of the iliac vessels, by the fingers of the hand passed down whind the uterus into the space left when it has contracted after the expulsion of the child. The strong recommendation of hailly leads us to direct your attention particularly to this contraction of practice: it is very easily carried into effect, and may use a part of the same pressure that is used to secure the miform contraction of the uterus. We cannot well compress a corta, without also compressing the cava and bifurcation of the iliac veins; which seems to us of equal, if not of greater aportance, because the veins are a great source of flooding, and we can prevent the regurgitation of blood from these great maks into the uterine veins, an important means of prevention accomplished.

Transfusion was strongly recommended some years ago by r. Blundell. The novelty and reasonableness of the sugstion, the experimental skill and the eloquence of its advocate, brought it under the most favourable notice of the profession. be principle of transfusing the blood of a healthy person into half-empty veins of a dying woman, and thus artificially uplying the quantity of blood necessary to support life, has in something so reasonable as to require little argument in its wour. Nevertheless, it is a principle by no means easy to act pon: the operation is surrounded with difficulties, and requires caution, lest anything else than pure blood be infused into e veins. When we consider the risk attending the admission air into the veins, it is hardly justifiable to attempt it, unless patient be in extremis. On the other hand, Dr. Blundell cributes its failure to delay, by which the case was brought into is condition. He says, "I have myself seen two die, whose res I feel persuaded might have been preserved to society, had ransfusion been more promptly begun." (Blundell's Obstetricy, by astle, p. 350.) Dr. Ashwell mentions two unsuccessful cases. We we witnessed three cases, in which transfusion was performed shout any accident: they all died. Transfusion is extremely haztious, and if there were a reasonable chance of saving the patient

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by other means, we would not venture on the experiment value seems to consist in the supply of blood afforded artificiathe woman sinking from the loss of this vital fluid: it is, the fore, especially applicable to extreme cases; and if it between, the effect in such instances must be the experiments of determine it. The cases in which we have seen it trist precisely those in which the operation seemed to be me tinctly indicated—that is, when the bleeding had case the pulse was flickering, and the symptoms of exhauston patient becoming every minute more and more manifest: more blood was wanted to carry on the vital function transfusion seemed to be the only way to supply it.

The able researches of Dr. Routh and others place the tion of transfusion in a more favourable light than that is it has been often viewed. Dr. Routh has collected two cases in which transfusion has been adopted, both in the hemorrhages and in cholera, with the results. The following enumerates the cases of hemorrhage, two of them being uterine.

No.	In whose Practice.	Mot L.	D,	Authority.
8 9 10 11	Dr. Blundell, " Mr. Doubleday. Dr. Waller. Mr. Doubleday. Dr. Uwin. Mr. Brown. Dr. Blundell. Mr. Clement. Mr. Doubleday. Dr. Kleth.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1	Physiological Researches.  "" Lancet, 1825-6, p. 111. "", p. 154. "", p. 702. "", p. 295. "", 1826-7, p. 457. "", p. 232. "", 1827-8, p. 698. "", 1834, p. 156.
18	Mr. Bickersteth.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		" p. 924. " 1839-40, p. 871. Med. Gazette, vol. xiv p. 5 Am. Journal of Med. Scient p. 255. Ditto, 1827, p. 299.

## SPECIAL FORMS OF UTERINE HÆMORRHAGE. 439

No.	In whose Practice.		hers.	Authority.
	Forward .	14	4	The second secon
	Dr. R. Oliver.	1	100	
	M. De Berg.	1	-	Gazette Méd., 1838.
	Dr. Ashwell,	1160	1	Guy's Hospital Reports, vol. ii.
	M. Gondin.	1	1	Archives Gén. de Méd., 1830, p. 132.
23	Mr. Brown.	.1		Northern Journal of Med., 1845, p. 214.
24	Mr. Banner.	1	100	Lond. Med. Jour., vol. iii. p. 588.
25	Mr. Brigham.	1	la :	MedChir. Review, vol. ix. pp. 26,
16	Mr. Jewels.	1 11	1	Ditto, p. 514.
Cases of non-uterine hæmorrhage -		20	6	(m) - (1)
		2		
literine hæmorrhage -		18	6	4

Thus, in twenty-four cases of uterine hæmorrhage in which transfusion was practised, six only were lost—just one-fourth.\* Such favourable results give every encouragement to its adoption; but great care is necessary both in the selection of the time for the operation and the mode of performing it.

## LECTURE XXVI.

SPECIAL FORMS OF UTERINE HÆMORRHAGE,

FLOODENGS may occur at any time during labour: before or after the birth of the child—before or after the separation of the placenta. They may occur also several days after labour. We shall consider each variety separately; whether it occur before the birth of the child, between the birth of the child and that of the placenta, or afterwards.

FLOODINGS BEFORE THE BIRTH OF THE CHILD present two varieties, depending on the situation of the placenta. This viscus is most commonly applied to some part of the body or fundus

<sup>\*</sup> Professor E. Martin, of Berlin, has given a tabular account of fiftymen cases of transfusion in recently delivered women, of whom forty-five scorered. (New Sydenham Society's Year-Book for 1860, p. 350.)

uteri; but occasionally it is attached to the cervix and os uten You can appreciate the important difference which this merchange of position makes in the character and danger of the hæmorrhage.

In the former case, when labour proceeds, every pain is a temporary check to the discharge; but in the latter, the contractions of the uterus only increase it, by breaking through the attachment of the placenta to the mouth of the uterus. In the one instance, hæmorrhage is an accidental complication, that may or may not arise; in the other, it is the unavoidable effect of the action of the uterus. Hence the late Dr. Rigby of Norwich appropriately divided these floodings into Accidental and Unavoidable—a division simple in itself, sufficiently expressive of their essential difference, and one which has not since becomproved upon.

ACCIDENTAL HEMORRHAGE before birth is caused by the partial separation of the placenta from the fundus or body of the uterus The causes generally stated to produce this detachment, are shocks violent exertions, as straining, mental emotion, plethora, spatmodic contractions of the uterus, etc. Not one of these appears to us sufficient per se to separate the placenta from the uterus. The edge of the placenta adheres very firmly to it. When in attempt is made to remove the placenta, this margin is the only part not easily detached: there is also evidence to prove that the uterus may receive a very violent shock, and the placenta not be disturbed. (Medico-Chirurgical Transactions, vol. xii.). The structure of the placenta is such as to admit of its expansion and contraction without breaking through its connection with the uterus. We question very much, therefore, that any spasmodio contractions could separate it. These causes seem to us to produce their effect in a different way. Each of them must, in a greater or a less degree, disturb the general circulation, especially in the uterus: the placental circulation cannot, therefore, escape this excitement; the delicate coats of the vessels that pass into the placenta from the uterus are broken through, and blood is effused between the surfaces; this continues to increase, until

nately it forces its way beyond the edge of the placenta, and detaches it from the uterus. Such an effect can only be aced when the force of the circulation is greatly increased, the effusion of blood rapid, so that the edge of the placenta is from its attachment by the accumulating weight of the fluid. as degree of force produces a different effect; the blood may escape, but be effused and coagulate on the uterine surface of placenta, thus preventing any further discharge; conseally in such instances, until the placenta is detached and dled, it would be impossible to say whether there has been hamorrhage. This is not, however, always the case; the alarming symptoms, and even death, have been the equence of a hæmorrhage of this kind, when the edge of the enta has not yielded to the weight of the blood effused. Drs. dy and M'Clintock refer in their valuable report to two cases is kind, which had been related to them by Dr. Johnson, late er of the Dublin Lying-in Hospital. "In neither of these s was there any external hæmorrhage whatever; and the ration of the placenta seemed to have been produced in one outward violence; but, in the other, it was apparently of taneous origin. Both these patients sank under the loss of d; and upon post mortem examination nearly the same appearwere found in each-viz. the placenta, except at its extreme rin, was entirely detached from the uterus, and the cavity or space between the two contained an enormous quantity of ulated blood." (Midwifery and Puerperal Diseases, p. 194). mall coagula on the uterine surface of the placenta are a mon occurrence. The ordinary effort of labour seems to be cient to produce these partial effusions. They do not affect constitution of the patient, nor cause any external discharge, efore they pass unnoticed; but when the circulation is ted, and blood poured out rapidly, there is no time for ulation; it bursts its way through all restraints, and thus es accidental hæmorrhage.

ed circulation, we sometimes meet with others of an opposite eter giving rise to hamorrhage. Some women of a leuco-

may have had leucorrhoza, menorrhagia, e pregnant, the slightest cause produces he carriages are frequent; but if they are pregnancy, it is seldom without some slightee in its progress; hence, when labour a le to meet it; the contractions of the Lamorrhage take place it is less easily of the uterus, and exhaustion of the patie. In such cases, a very slight flooding may

phiegmatic temperament may have been

serious results. The Symptoms that accompany accid seldom uniform. The flooding generally stream trickling from the vulva, which pains are present, and returns as they sub gush of blood is observed, accompanied the hamorrhage may continue to return i torrent may place the patient at once in a form of accidental hamorrhage is not so tutional effect of the hæmorrhage is first and in the action of the uterus; the pa pulse is more rapid and jerking; but the irratation and exhaustion very soon becomes restless, throws herself about efact to rise; vomiting may take place; th six valls for air, and feels suffocated, facts: the syncope may be prolonged, a aspendansion; she is pulseless, the coun the cres are fixed, or slightly drawn up are cont., as she revives, she speaks inco steriorous lactitation is increased, and so the two like a drunken person; the puls and to-king, small, and extremely com tacks, with some more alarming symptom con. the componence cadaverous, the pul are blown on with every expiration; conv

and at least, and a few gasps, the last o

The Treatment must be prompt and decisive. Accidental bemorrhage usually occurs in the first stage of labour, when the membranes are unbroken, and the liquor amnii prevents be uterus from contracting about the body of the child. In mier, therefore, to control flooding, the uterus should be made to cetract as much as possible, and coagulation should be promoted the spongy texture of the placenta: both objects are accomsched by rupturing the membranes, because the uterus contracts the body of the child, and, the placenta being compressed bemen both, the blood is prevented from escaping so freely from uterine surface. This effect may be rendered more perfect by using means to increase the tonic contraction of the uterus, which rupturing the membranes alone will not always accom-Therefore ergot of rye, or the electric current, may be a drachm of liquor secalis cornuti infused in a wine-glass of water may be given alone, or, what is better, in combination with opium. Thirty or forty minims of tincture of opium may be added; and in proportion as exhaustion increases, larger of opium may be repeated. When you wish the aid of electric current, the electro-magnetic apparatus should be eployed, and currents passed either transversely or in the egitudinal axis of the uterus: rods, holding sponges moistened a saline solution, are connected by wires to the apparatus, and be applied to any part of the abdomen; a sponge may be stroduced within the vagina, and connected in the same manner with the battery: by these means currents may be made to pass a any direction. The only objection to this mode of exciting te uterus is the delay which might arise in preparing the instru-Bent. Entrust the management of these details, therefore, to an mistant, and do not lose a moment in carrying out the treatment of the case, independently of this agent. Your patient's life langs by a thread; and if your attention be taken off from her, Ten for an instant, she may relapse into the syncope of death.

While you are thus endeavouring to arrest the torrent from uterus, you must at the same time, if possible, prevent the cts of a languid circulation, and maintain the action of the heart. mulants may be given, even largely; we have known a glass of

brandy scarcely support the pulse. Brandy with laudanum is more decisive in its effect; the temperature of the extremities must be maintained, and as pure air as possible allowed to circulate freely through the apartment. Be careful, also, to avoid changing the position of the patient much; any exertion i extremely injurious to her, and especially recollect the danger of raising her from the recumbent posture. If these means fail, or are tardy in their operation, transfusion will, no doubt, occur to you; let it be tried, and if you do so, use every precaution to avoid failure. Let your assistant prepare the apparatus, having the basin for the blood raised to the temperature of 98°. Take the blood from the strongest and healthiest person you can find let the vein be freely opened, so that the current may be rapid and to insure this effect, you may adopt Dr. Waller's plan, and give the person a full draught of brandy and water; but above all things let no air enter the vein-this is the danger chiefly to be dreaded; some blood should, therefore, be forced through the tube before it is inserted into the vein.

In accidental hæmorrhage there is seldom occasion for these extreme measures; rupturing the membranes, and ergot of rye, are generally sufficient to arrest the discharge. We have explained the principle on which the discharge of the liquor amnii produce this effect; and the practice has been recommended by Mauriceau Puzos, Denman, Rigby, Merriman, Ramsbotham, Collins, and other eminent practitioners. Its value, however, has been dis puted by Leroux, Dewees, and Burns, who advocate the intreduction of plugs into the vagina to cause coagulation, and the check the flooding. With regard to this point of practice, we have no hesitation in deciding in favour of rupturing the membranes; we have never found it to fail, but the plug employed as a substitute is evidently liable to grave objections. A coagulum in the vagina can have no effect on vessels in the body or fundus of the uterus: are we then to wait until the coagula increase so as to stop these vessels? If so, the placental side of the uterus must be wholly filled with coagula; and even then it is doubtful whether they could prevent the hæmorrhage. You may, therefore, plug the vagina, and fancy the hæmorrhage has ceased

## TREATMENT OF ACCIDENTAL HEMORRHAGE, 445

cause no more blood flows externally, but the symptoms of manstion rapidly accumulating will soon convince you of your tror. If the membranes be ruptured, the vagina may then be bugged, as a temporary expedient; because, although some congula may collect in the uterus, the quantity must be small, and the amount of blood lost would be less than if it flowed minterruptedly from the vagina; but even on this topic we cannot speak without some hesitation. We confess we like to see that ever discharge may flow from the uterus; nor do we feel attained so long as there is the least trickling of blood. If the vagina were plugged, we could not tell whether the hæmorrhage and completely ceased, and might be deceived by the absence of all external appearance of hæmorrhage.

Turning the child for accidental hæmorrhage has been pracsince the days of Ambrose Paré. All the older practitioners lid so, and many of their patients died in consequence; latterly there was more caution in having recourse to it, and now the practice is rather an exception to the general rule. It therefore equires some consideration. You will find it very seldom necesary to turn the child; the means already detailed are generally dequate to control flooding, and to avert impending danger, without turning; but if it should happen that they are not rufficient for the purpose, the child should be removed. The faccess or danger of this effort to save the patient rests, in a great degree, on the judgment of the practitioner: if the operation be performed at all, it should be undertaken before the patient is much exhausted. If you do so, and make every provision to support her while going through it, you will succeed; but if, like many cases reported, you proceed to turn the child because the woman is so exhausted that you fear she will die undelivered, you place her, by the operation, beyond all possible chance of Decovery.

UNAVOIDABLE HEMORRHAGE: PLACENTA PREVIA. Unavoidable bemorrhage is a much more serious variety of flooding than that which we have briefly described; consequently, from the time when its nature was correctly understood, its treatment

reported the most earnest attention; controversies, of have given you at ut it, and, like troublesome week! marriage the meetyes with the subject, that it is diff s target the one from the other; they have also covered s. z., y ...tr. aries, and so obscured it, that it is not to to provide matter before you in a clear and intelligible to the control of longer is in the attachment of the places Server and in the of the uterus (placenta pravia): - . the is util legins to dilate, this connection is title governing unavoidably follows. Event that term of programmy, the attachment of the placent issurb- hundlis murhage may be the result: hence p 2 cut from only and impanies this form of flooding. articles of the families uteri, so far from checking, only to itself tight we are consequently deprived of the ( which this powerful agent gives us in controlling the 1.50..5.



North Moras of Checking Haracrelage from Placent The extent and danger of this form of hæmorrhag

\* Fig. 131. Placenta prævia.

was unusual and most unfavourable position of the placenta: and consequently seem as if Nature had neglected her usual and had not employed the same provident attention to exainst the effect of this accident that is manifested in so ether instances. "Well" (says Dr. Rigby), "has a celeteacher (Naegele) observed, 'there is no error in Nature weed to this; for the very action which she uses to bring the the world, is that by which she destroys both it and its True as this proposition seems to be, and fatally true many instances it has been found, nevertheless we permit you to consider it as true in its entire extent; even here Nature endeavours to avert the consequences dangerous displacement. Her manner of doing so we triefly explain; because it is very essential that you should apprehend the natural means by which such hæmorrhage be arrested, in order to apply the resources of art with suppose, then, a case in which the placenta is comby attached to the mouth of the uterus, and that labour has commenced; what takes place? The first effect of the pains be to break the vessels passing from the margin of the os into the maternal portion of the placenta. The curling les of the uterus are closed by coagula formed in their torn they may not, therefore, pour out much blood. (See mdix). Such is not the case, however, with the large ne veins when they are broken across; one fragment is ppening that communicates with the large net-work gins in the uterus; the other leads directly into the mous structure of the placenta. Through both these orifices I may be discharged; being, in the former case, venous I, flowing in a contrary direction to its course from the m; and in the latter, arterial blood, passing directly through evernous structure of the placenta, and escaping from the en openings on its surface. Such being the sources of orrhage, does the progressive dilatation of the uterus increase ntrol the discharge? If it increase the hæmorrhage, Nature committed a capital error; she sins against her great law to

do nothing in vain, and gives life only to destroy it. If the hæmorrhage be controlled, she is consistent with herself, and even here establishes the possibility of life being preserved by her own efforts. We shall endeavour to prove the latter hypothesis, and demonstrate the manner in which dilatation of the uterus controls unavoidable hæmorrhage. Let us examine the effect of this dilatation on each source from which blood flows.

The arterial current through the placenta is in direct propor tion to the number of arteries that supply blood to the cavernot structure; but, as the dilatation of the uterus increases, the number diminishes, because they are successively broken of from the placenta; and when the dilatation is completed, the placenta being detached, hæmorrhage from this source mu cease, as the supply is cut off. This provision, however, wou always fail, if it depended upon the complete dilatation of the uterus for success. A certain period of time (some hours) may be occupied in effecting it; and if an uninterrupted current arterial blood were flowing from the placenta for a very much shorter period, the woman would expire long before the place. was separated. Some means of retarding or interrupting the current is necessary; and here we find the importance of reticulate texture of the placenta; the blood moves slowly throw it, and, if it accumulate, tends to coagulate-the placenta at like a sponge. Any cause compressing the placenta, which may prevent the free discharge of blood from these orifices, will cause an accumulation and consequent coagulation of blood in the spongy texture, thus preventing further hæmorrhage. The force of the fundus uteri acting on the cervix also acts upon the placenta, and exercises a pressure upon it proportionate to the strength and frequency of the pains. Thus, if the uterus retain its power, and be in full action, the tendency of its contraction is at the same time to cause and to arrest the discharge of blow from the placenta; to cause it, by breaking the connection will the uterus; to arrest it, by pressure on the whole mass of the placenta. Did hæmorrhage, therefore, depend upon this source alone, it would be much more under the control of treatment than we find it. Our chief object then would be to increase the munter-pressure on the placenta from the vagina, so as to cause agulation in its structure.

We have, however, to consider another source of floodingthat derived from the exposed veins of the uterus. This venous bod regurgitates from the general venous system, and will hw freely and most dangerously so long as the cervix uteri mains expanded, and no contraction of the tissue takes place: because the venous canals, and their openings of intercommunithion, are fully dilated, and, so long as they remain in this state, I'my of these be exposed on the surface of the uterus, profuse mous hæmorrhage will be the result. But the dilatation of the os uteri is, in fact, the contraction of the cervix; the womb manot open unless the tissue of the cervix contract upon we do not assume that this contraction of the cervix is a ameular effort, as some suppose; it is sufficient for this explanato admit, that the cervix possesses contractility of tissue. Now this contraction of the cervix has precisely the same effect can the veins here, as the muscular contraction of the fundus a upon them in other forms of hæmorrhage; the sinuses (as are called) are more or less closed; the veins are compressed; temporary valves are set up, and thus the regurgitation of blood this source is prevented. As the dilatation of the uterus wrances, the whole of the exposed portion of the cervix and scenta is directly compressed by the head of the child, an ditional aid in preventing the escape of blood.

The natural means, therefore, of checking unavoidable hamorting is the complete separation of the placenta from its attachment officerviz of the uterus; because, by this means, all the uterine teries are broken off from the placenta, and the veins are closed to the dilatation of the uterus which is necessary to effect the paration. If we have rendered the design of Nature sufficiently deligible, you can readily perceive why she so often fails in complishing her purpose, and why these hamorrhages are so gerous. In order to effect the dilatation of the uterus, and try out this intention, the pains must be vigorous, and the contile power of the uterus unimpaired: but unfortunately, in

too many cases this essential element is wanted. Slight morrhages may have occurred before labour, so as to wake tone of the uterus; or, what is more frequent, the first rupt the blood-vessels is followed by such a violent gush, that patient is exhausted, the action of the uterus is enfeebed the pains are consequently weak and inefficient. As they pro and slowly separate the placenta, gushes of blood from ruptured vessels accompany every pain, increasing the exha of the patient and the atony of the uterus, until at lengt uterus has lost all power of accomplishing this object, a patient expires. Such hæmorrhage is equally fatal to the because the fœtal blood is deprived of all influence fro maternal circulation; the necessary changes are not carrie it receives no nutrition, and dies equally exhausted. The is generally said to die from hæmorrhage of the fætal ! but the fctal vessels are not always ruptured, which is a sary condition; however, it presents the same appearance they were-and hence hæmorrhage is the cause usually a for its death. You will perceive, therefore, that Nature failed to provide against the effect of this malposition, t her efforts are generally useless, because exhaustion is so induced in the patient. She is not, however, always so cessful: cases are recorded where the dilatation of the was accomplished, the placenta detached, hæmorrhage a and the patient saved by the provisions of Nature alone fessor Simpson records 141 cases, in the majority of wh placenta was expelled safely by the natural efforts (. Journal of Medical Science, March, 1845, p. 181-183): have been since reported, a sufficient proof of the correct our position.

The Manner and Extent of Attachment of the Placenta cervix uteri are subject to great variety, which modi amount of hæmorrhage and the danger of the case. The placenta may be applied to one side of the cervix, and only the os uteri just sufficiently to give a character to the rhage. It may lie over the os uteri, and a small por attached to the opposite side of the cervix; or it may be a

y round the neck. Thus there may be either a partial or olete presentation of the placenta. In the former case, the ete dilatation of the os uteri is not necessary to arrest rhage. It may be treated in the same manner as accidental rhage: the membranes may be ruptured, and the liquor discharged; the head will then descend upon the placenta, impress its cavernous structure strongly against the cervix thus causing coagulation in that structure, and closing the sopenings in the cervix. In the latter case, however, this sufficient; and hence the extreme danger of this compli-

Symptoms that indicate presentation of the placenta e the closest attention, because the timely notice of such ident is of importance, in order to undertake its successful ent. Hæmorrhage may occur at the seventh, eighth, or month of gestation. The manner is characteristic: a gush of blood from the uterus may take the patient quite rprise; there has been no shock or violent exertion to it; she has been perfectly at rest, or asleep perhaps, when, at any previous pain or notice, this discharge appears. It is rofuse to mistake for the show; she therefore becomes ed; assistance is hastily sent for; and, by means of rest, etc., it seems to be arrested. It may return again in a few or perhaps not for some days, when labour regularly sets hæmorrhage accompanying the pains. At first, perhaps, ight, but the frightful torrent is not long delayed: after a ore pains, a gushing tide of blood from the uterus places tient in the utmost danger; syncope follows, and all the oms of exhaustion rapidly succeed each other. In other ces, the patient has not even this monitor: the first symptom our is profuse flooding, followed instantly by all its worst mences. This peculiarity in the manner in which hæmorpresents itself may be considered as diagnostic of its cause, e influence of the pains in increasing it is a further conion of its source. It is right, however, to apprize you of ror that may easily be committed by the inexperienced. imes a slight hæmorrhage is caused by the partial separation of the membranes from the side of th quantity of blood trickles down, and occupies the membranes and os uteri: here it is confin to the time it remains, may be either qui congulated, or, if long retained, may form When labour begins, and the os uteri opens charged with or without coagula; or there t charge of blood with the pains, just suffi attendant's apprehensions. His suspicions app when an examination per vaginam is made: h firm mass occupying the os uteri, just like hence falls into an error that, we fear, is not mitted: he sets down a presenting coagulum sentation. In such cases the hæmorrhage co discharge, and is not renewed with the p coagulum, such as we have described, is obser tinguished from the placenta by the facility w. may be passed between it and the cervix 1 adheres to the cervix, the coagulum does not.

Diagnosis. An early vaginal examination whenever hamorrhage appears. Both finge should be passed into the vagina, and the fully examined. If the placenta present, the full and spongy than usual, and communicate of fluctuation of the liquor amnii nor the finchead. If the os uteri be open, the uterine sure is felt presenting a minutely granular surfalso may be traced if the dilatation have a

steri, or the dilatation be sufficiently advanced to reach the edge of the placenta, you cannot be certain about it. The moment that the situation of the placenta is detected, the practitioner must at once determine the course he is to pursue: the safety of the mother, and the possibility of preserving the child, depend welly on his promptitude and decision.

## LECTURE XXVII.

SPECIAL FORMS OF CTERINE HEMORRHAGE (continued).

TEATMENT. The treatment of hæmorrhage from placenta previa is at the present time involved in a most inextrible controversy. We shall not ask you to unravel it, but rather to keep steadily in view those principles which we have had down for the treatment of uterine hæmorrhage, and to call mind the explanation we have given of the utero-placental direulation: these will serve to guide us through the labyrinth.

You may be called upon to treat unavoidable hamorrhage mier very opposite conditions. You may be aware of the position of the placenta before or at the moment when any hamorrhage pears: labour is only commencing; the patient is free from any exhaustion; the pains are active; you may expect the floodage, but it has not yet arrived. On the other hand, you may be not for in great haste to save a patient who is dying from amorrhage. You find her pulseless, the surface cold, the uterus carcely acting, the bed saturated with blood, and the patient ruping. If you were to treat both these cases in precisely the me manner, you would certainly commit a most serious mistake. Between these extremes there are degrees of difficulty and of danger which must modify our treatment. Let us, first, there, consider the most favourable of these examples, viz.:—

'asses where Hamorrhage is only Commencing. Here the chief et is, if possible, to save both the mother and the child: you

know, when the deluge comes, that the child is lost, and it is very doubtful whether the mother may be saved. To preserve the child, it is necessary to remove it from the uterus. To save the mother, the connection between the placenta and uterus must be broken off. If the former be done incautiously, the mother may be sacrificed; if the latter be hastily carried into effect, the child will be destroyed. We must avoid falling into either d these errors, and must act upon correct principles in our treatment. To accomplish the objects in view, it is necessary to turn and deliver the child; but this cannot be done until the dilatation of the uterus is in some degree advanced, or at least until the os uteri is dilatable. Never attempt to force open the mout of the womb for this purpose. The mouth of the womb, however, is generally very dilatable, and will admit the hand, cautiously introduced, even when slightly open; but if it should not, our first step is to use the most efficient means to arrest the discharge while the uterus is dilating. This may be effected, 1, by directly compressing the placenta; 2, by maintaining and increasing, it necessary, the action of the uterus.

1. Compression of the Placenta is usually accomplished by plugging the vagina. The tampon (as it is called) is directly applied to the source of the hæmorrhage: the exposed portion of the placenta is compressed, and a coagulum is formed within the outeri, which must close its openings, and also the venous crifica on the surface of the uterus. The irritation also of a plug so applied, by distending the vagina, causes a more rapid dilatation than might otherwise take place.

The mode of plugging the vagina is very much governed by fancy: some use a single plug; others several separately introduced; some will employ silk handkerchiefs or sponges for the purpose; others are satisfied with common hemp. We have been in the habit of using two or three small plugs in preference to one large one, because it is necessary to remove the plug from time to time in order to judge of the extent of the hæmorrhage, and sometimes also to relieve the urethra from pressure. If therefore, a single plug be withdrawn, the coagula will be disturbed, and the hæmorrhage renewed; but if the outer pieces

by be taken away, this will not be the case, and the extent of benorrhage may be judged by the degree to which these by are saturated; they can be replaced by others, so as more liently to favour coagulation. When you have made the assary vaginal examination, introduce a sponge; and let it be applied directly to the os uteri. Let this be followed by two or the others until the vagina is filled, and support the whole them by a napkin soaked in ice-water, and applied to the

Another means of compression is to puncture the membranes, and allow the liquor amnii to escape. This practice has been mested by Dr. Radford, but for a different purpose. In order around the sudden discharge of the liquor amnii in cases of the state, and thus adding to this danger, he proposes to enture the membranes through the placenta with a trochar ade for the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the liquor amnii to flow away where the purpose, and to allow the placenta with a trochar and the purpose, and to allow the purpose, the purpose the purpose to the purpose the purpose to the

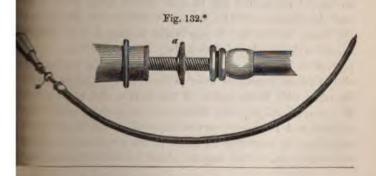


Fig. 132. Gum-elastic catheter, with spear-pointed stilette passing gli it. a, Screw-nut to sheathe the point.

removed, it is better to leave the remaining one in its position Consider it as part of the placenta, and pass the fingers on to the edge of the os uteri; press them forwards in a conical form between the placenta and cervix, detaching the former from it surface: the more quickly this can be done the better, so as to admit the hand and arm into the uterus; because, when a portion of the placenta is thus detached, the introduced arm acts as a kind of temporary plug, and hæmorrhage is more efficiently restrained The membranes, if entire, may then be broken through with the fingers; but, if they resist, the catheter may be introduced, so a to puncture them without the necessity of using much force The hand and arm then pass along the head and body of the child to the limbs, which, in nine cases out of ten, lie posteriorly to the right side of the uterus. As you always meet the shoulden and arm first, you can have no difficulty in recognising the legdo not, therefore, lose time in searching for the foot: if the know first meet you, seize it, and bring it down quickly into the vagina. The limb of the child then becomes a plug in the plan of the arm of the accoucheur; the remainder of the deliver should be as rapidly completed as is consistent with safety to the cervix uteri. In such a case as we are now speaking of, the cervix will almost always yield very readily, and therefore there is a reasonable chance that the child may be saved; but every thing depends upon promptitude. In such an operation you will find it more convenient to use the left hand than the right. It generally happens, when the child is removed, that the placents follows immediately: be prepared, therefore, for this, and, if necessary, use artificial respiration if the child be slow in taking its first inspiration. When the child and placenta are removed, hæmorrhage generally ceases: the patient may be given a full opiate, ice-cold cloths may be applied to the vulva, and the whole secured by the abdominal bandage carefully applied. If, however, hæmorrhage should continue, the single plug wrung out of ice-water may be introduced into the vagina, and a full dose of ergot of rye given, which will arrest it.

Cases where the Patient is in Extreme Exhaustion. We have dwelt at some length on the treatment of a case where

ature of the extremities maintained by wrapping them in m blankets, and applying hot jars to the feet. A free circuon of pure air in the apartment should be secured, and the ent kept completely in the recumbent position.

while these steps are being taken to arrest the consequences you know will follow such symptoms, the delivery of the d, the most important proceeding, will, of course, occur to the only question is, when should it be done? We would the moment symptoms of exhaustion begin to appear: if you for their full development, it would be better not to venture a such an operation; but if such symptoms be not present, ould be desirable to delay a little, in order to give the uterus to dilate sufficiently to pass the hand easily within it. If, ever, the patient show the slightest evidences of commencing austion, you must deliver at once.

furning the Child is at any time a serious operation, and in no more so than under the circumstances we are at present sidering: not because the operation is then peculiarly difficult; the contrary, in consequence of hæmorrhage, the uterine as offer less resistance than usual to the introduction of the ad, and the accoucheur has, consequently, much less difficulty m when the uterus is strongly contracted on the child; but it an operation attended with considerable danger, from the the patient receives. The records of midwifery afford ple testimony of the fatality of turning in unavoidable hæmorge, chiefly because the patient was too much exhausted to port the shock of the operation. She either died immediately, a few hours afterwards. In the case supposed, however, such objection exists. You proceed to deliver the moment baustion shows itself, or before that, if the os uteri be sufficiently for the purpose. If the labour have continued for some time hout exhaustion in the patient, the outer plugs may be rerei, and a vaginal examination cautiously made. You will generally be able to ascertain the degree of dilatation, withdisturbing much the plug in contact with the placenta: if the teri be one-half or even one-third dilated, you may deliver. ther case, when about to operate, the external plugs being

of turning in extreme exhaustion. The question, therefore, proposes itself,—What are we to do in such cases? It is very difficult to answer it without venturing a little on the troubled sea of controversy. The general reply is, that which so much influenced Smellie. We should not let the woman die undelivered. We assume that she must die, and, therefore, prefer that she should do so secundum artem, rather than expire with the child in her womb. We shall presently see whether this manner of reasoning is valid. Let us examine the opposite side of the question, and reflect on those cases where turning was not attempted. We shall refer to Dr. Lee's collection of cases for one which is very instructive.

"(Case 262), a woman in the 7½ month of pregnancy had a great discharge of blood from the uterus for thirty-six hours before I" [Dr. Lee] "saw her. A large portion of the placenta was hanging through the os uteri into the upper part of the vagina. I proposed immediately to deliver by turning the child, but she obstinately refused to submit to the operation, and I was apprehensive she would die undelivered. The hæmorrhage continued with great violence for several hours, when the placenta and a dead fætus were expelled without assistance. She remained long in a state of great exhaustion, but ultimately recovered." (Clinical Midwifery, 1st ed. p. 144). Nature accomplished her work here, and the woman did not die undelivered.

Numerous instances are recorded in which the delivery was accomplished by the natural efforts: the placenta was detached, the hæmorrhage ceased, the mother recovered, and sometimes even the child was saved. If, then, it be true that the natural separation of the placenta arrests hæmorrhage; if it be consistent with our knowledge of the structure of the placenta and of the utero-placental circulation, that such should be the case; and if turning the child be proved to be a most dangerous operation in cases attended with extreme exhaustion, is it not reasonable to think that the artificial separation of the placenta in these cases—a much less serious operation, a mere imitation of Nature—would be a justifiable practice, and one that hardly merits the very severe censure it has received? The objection may,

perhaps, occur to you, If separation of the placenta be safer than turning, why not always do so? We would reply that, although user for the mother, it is destructive to the child; and our practice must be guided by the same principles in this as in other obstetric operations: if it be possible to save both mother and shild by turning, we must turn; but if we have any doubt about the mother's safety, we must not hesitate one moment because of the child. Some practitioners will not scruple to destroy the shild with the perforator, when there is a doubt about the mother's safety. Why then should we hesitate, in the present instance, to sacrifice the child, if we be satisfied that the separation of the placenta will arrest the hæmorrhage and save the mother; especially if by doing so we avoid exposing her to the shock of so dangerous an operation as turning in extreme chaustion. It is no reply to this argument to say that some women have been thus delivered in the last stage of exhaustion, and have escaped; we only ask you to examine the records of midwifery practice, to find the number who have not escaped. but who have lost their lives through this operation.

Again, it may be said that, in those cases where Nature neceeds, the action of the uterus is strong; that it is the omtraction of the uterine fibres, not the separation of the placenta, which arrests hamorrhage; and therefore, that artificial sparation would not be applicable in cases of exhaustion. It is quite true that contraction of the uterine tissue takes place in the natural effort to separate the placenta, and equally so that the venous openings are in a great degree closed by the head descending on the cervix; but we have also perfectly clear tridence that coagula form in the spongy structure of the picenta to arrest the current of arterial blood, until this source hemorrhage is cut off by the separation of the placenta; we may therefore infer that, if this did not happen, if the current from the arterial side were too impetuous to admit of coagulation, the placenta would still be a fatal source of flooding, although all exposed uterine openings were closed. Exhaustion implies want of tone in the uterus, which has an equal influence on the terial as on the venous source of hemorrhage. If, therefore,

trasted, and have been reported by gentlemen who have be perfectly impartial observers of the controversy carried on respecing the proposal to separate the placenta artificially; who has been neither advocates nor opponents of the practice, and on who testimony, consequently, the strictest confidence may be placed.

In the preceding lecture (pp. 446 et seq.), we pointed out to ye the resources of Nature in arresting unavoidable hæmorrhage that her remedy consists essentially in detaching the placenta for the surface of the uterus. We have now given you reason why we should not adopt this practice in all cases of placent presentation, and will now consider how far this imitation Nature may be applicable in certain exceptional cases, whe the legitimate practice of turning the child cannot safely tadopted.

Extreme Exhaustion in the patient is one of these exception We trust that we have given you sufficient proof that, in su instances, turning the child is particularly dangerous: we have quoted some convincing examples to testify the powers of Natu in arresting hæmorrhage even in these unfavourable circum stances, although she sometimes failed in saving the patient. now remains for us to determine whether artificial separation the placenta may be safely adopted-that is, whether it arrest or increase the flooding; because, in such a hazardo emergency as this, the safety of the mother only must be con sulted-the child is but a secondary object. We shall ago bring before you the evidence of Dr. Waller, because he " not an unconcerned spectator of the controversy which has late been carried on regarding the mode to be adopted in treatment of placenta prævia, but preferred delaying an opinis until he was enabled to form one from facts which had occurr under his own especial notice"; and further, because "he enter upon the inquiry with a strong prejudice against the new metho it being contrary to what he had been taught, and equally c posed to what he had been long teaching others, to suppose if it would be a safe practice to effect a complete separation of t placenta from the walls of the uterus whilst the fœtus was si within its cavity." (Medical Times, Jan. 8, 1848, p. 233).

one case (24), Mr. Doughty requested Dr. Waller's assistance in the early stage of the labour before serious exhaustion came on. The placenta was felt encircling the os uteri: a small portion was detached anteriorly, through which the funis had descended. The os uteri was considerably dilated; the undilated portion was other firm; bleeding was going on, but it was not excessive. "Prior to turning, I detached the placenta entirely from its conpection with the uterus, for the purpose of ascertaining whether the hæmorrhage would be thereby increased. I thought this a arourable opportunity of testing Dr. Simpson's plan, knowing that, if alarming symptoms came on, I had the labour under my wen control. No hamorrhage followed the separation. The hand was carried forward, and the child extracted: although in a state of asphyxia, the ordinary means succeeded in restoring it. The mother had no bad symptom, recovering as quickly as she had icen accustomed after an ordinary confinement." (Medical Times, Jan. 15, 1848, p. 257). In another case (27) of partial presentation, the uterus rigid, the os very partially open, there was considerable hæmorrhage. "As there was no possibility of turning, when I [Dr. Waller] first saw the patient, the placenta was detached, and dilatation waited for. hamorrhage occurred; and, in less than twelve hours afterwards, turning was had recourse to, and a dead child extracted." (Ibid).

Dr. Waller's case was reported in 1848; but since then we have a mass of evidence on the point which seems to us conclusive.

Dr. Trask, of New York, has taken great pains to investigate this question. He has collected and compared 353 cases of placental presentations derived from all sources; he may be looked upon as a perfectly impartial inquirer, and arrives at the following results.

Of these cases, 169 were complete, and 88 partial presentations of the placenta; the exact position of the placenta is not stated in 96 cases. The whole number (353) are divided into three classes of cases:—

1.	Cases delivered before the separation of the placenta	251
2.	Cases of spontaneous expulsion of the placenta	36
3.	Cases of artificial separation of the placenta	66

In each of these classes, there were certain cases so imperfer given that no conclusion could be drawn from them; thus, in cases of spontaneous expulsion, seven are omitted, leaving twen nine, and so on; but sufficient remain to prove the imporquestions we are considering. The results as to the magnetic frequent modes of delivery may be thus stated.

Mode of Delivery,	Total.	Mothers.		Proportion	Children-	
		Living.	Dead.	of Deaths.	Living.	Do
Turning	200	141	59	1 in 3.4	56	.8
Spontaneous explsn.	29	27	2	1 in 14	3	1
Artificial separation.	66	47	13	1 in 4.6	15	3
	295	215	74	1 in 3·9		

Dr. Trask observes (Prize Essay, Philadelphia, 1855), "The were 200 cases of turning; 141 recovered, and 59 died, or in three and four-tenths" (p. 46); and, "we have forty-serecoveries and thirteen deaths, or one in four and six-tenths, the gross mortality after artificial separation, while that as spontaneous expulsion is a trifle less than one in fourteen" (p. 8 Dr. Trask further refers to Dr. Simpson's collection of 654 ca (Lancet, 1847), to which he has added 284 since publish making a total of 938 cases of placental presentation, in which evere 237 deaths, or one in 3.95. "The mortality of the cases in our first table," (delivery by turning, etc.) "in which presentation of the placenta is noted, is precisely the same, verification of the placenta is noted, is precisely the same, verification of the placenta is noted, is precisely the same, verification of the placenta is noted, is precisely the same, verification of the placenta is noted, is precisely the same, verification of the placenta is noted, is precisely the same, verification of the placenta is noted, is precisely the same, verification of the very same transfer of the very same t

After the most cautious and careful inquiry, Dr. Tra arrives at the following conclusion: "That the gross mortal after artificial separation of the placenta is, therefore, somewoless than the general mortality under ordinary modes of tree ment, and especially less than after turning, but it is very much reater than after spontaneous expulsion" (p. 83). Dr. Trask as analysed those cases in which artificial separation had been adopted, both as to the position of the placenta and the condition of the patient prior to its separation. He finds 35 cases of complete presentation, and only seven of partial; and the large majority (31) were cases of "alarming prostration." "From his comparison" (he observes) "it is very plain that the 66 cases in which the placenta was artificially detached embrace a coniderably larger proportion of severe cases than is ordinarily met with; indeed, the mild and severe cases among these correspond remarkably not only in proportion, but in numbers, with those among the deaths just given above; that is, they were, as a whole, previous to the separation of the placenta, suffering apparently about an equal degree of exhaustion with those patients who, subject to the ordinary treatment, died."

Again, we have still later (1861) the able researches of Br. William Read, of Boston, Massachusetts (Library of Practical Medicine, vol. xxiii.), who has collected not less than 910 cases, from Portal, Mauriceau, and the earliest writers down to the present day. These he has carefully analysed; he has given a thort abstract of each case, and has collected them under eight different heads. To use his own words:

"In the first Table will be found fifty-two cases, where the placenta was spontaneously expelled, and the child born by the unassisted uterine contractions.

"In Table second, will be found twenty-six cases of spontaneous expration of the placenta, with artificial delivery of the child. That is to say, that the pains were vigorous enough to throw off the placenta, but not sufficient to complete the labour.

"In the third Table, we have artificial separation of the placenta, with natural delivery of the child. That is to say, the placenta having been completely detached from the uterus, the labour was finished by the pains alone. In this table, there are thirty-one cases.

"Table fourth includes those cases in which both placenta and child were artificially delivered. Of these were fifty-one cases." In these cases, the placenta was removed first, the child then delivered.

" Table fifth contains those in which th

detached, and natural delivery of the child say, room enough was gained by detacl placenta to permit the passage of the chi curring off the circulation between the for more contains 123 cases.

- Table sixth includes those in which, w the placenta" (in introducing the hand) " maintal delivery of the child. This table of - Table seventh collects all those cases was perforated, and the child variously

" Table eighth exhibits those (32) in undelivered." Omitting this last table, as proving arranged the remaining seven tables in s

firt cases.

show the proportionate mortality in each is right to state, however, that many o The result to the child is so and the mother is generally given st we main discussion. We have play

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results of those cases in which the placenta was either spontaneously expelled or separated previously to the birth of the child, so as to compare them with those cases where the placenta was removed afterwards.

These tables place the general mortality (1 in 4.8) somewhat lower than those of Dr. Trask, but agree with his in proving the greater mortality in cases where, according to the usual practice, the placenta was either partially separated or perforated, and the child delivered by turning, than in those in which it was either contaneously expelled or separated and removed before the birth of the child. Hence, then, the assumed danger of separating the placenta before the birth of the child is disproved. The danger concerns the child, not the mother, as is obvious from the tables. Dr. W. Read's researches demonstrate, also, other important facts. They shew that if the uterus maintain its force it will arrest the hæmorrhage by separating the placenta, and generally save the patient. Thus, as we have said, "Nature averts the consequences of this dangerous displacement" (p. 447). They prove, also, that the atonic condition of the uterus, the result of hæmorrhage, is the great danger; and that it is, in those cases, safer (Table III) to separate the placenta, and leave the child to the natural efforts, than to deliver it by art, as in Tables IV and VI. Drs. Trask and Read both prove the danger of turning in exhaustion, and the safety of separating the placenta.

If it should unfortunately happen that you are called to a case of extreme exhaustion—if you find your patient almost pulseless, with cold extremities, cadaverous countenance, perhaps tossing benefit about the bed, in the effort to breathe—we have no hesitation in telling you to remove the placenta at once; to plug the ragina immediately afterwards; to give her a large dose of landanum (forty minims) in brandy; to support in every way the temperature of the surface; and, if you find the action of the terms still feeble, you may try the electric current to promote action. (We presume, of course, that the apparatus has been viously prepared for you.) But should the pulse be restored, i reaction at all take place, we think you will find that a full e of ergot of rye will sufficiently answer the purpose. We

do not ask you to remove the child even then, very doubtful that any advantage is gained by source of hæmorrhage is not at the fundus, but uteri, exactly where it is compressed by the head one side, and the plug at the other; which, it ap; far better control any subsequent bleeding from t the removal of the child from the cavity of theu there is a double risk in such an operation: your unable even yet to bear the shock that we kn notwithstanding the reaction and signs of am also doubtful, as we have stated, whether the sud the uterus might not be attended with fatal conthe pressure is suddenly taken off the great veno abdomen, which are imperfectly filled with bloo thought unnecessary to plug the vagina after the placenta, inasmuch as hæmorrhage ceases on its : advise it as a precautionary measure, to meet th tingency that hæmorrhage may occur. its exception; and although in ninety-nine cases follow, in the hundredth you may regret not the vagina.

Rigidity of the Os Uteri we have found an delivery in some of the cases just related. to consider its treatment in cases of unavoidab You can readily perceive the risk, in such a laceration in the attempt to force the hand into t have already alluded to Naegele's experience c He mentions cases of placenta prævia, where turned and delivered with perfect safety, but a bling of blood remained after labour, which attempt to check it. "On examination after Naegele has invariably found the os uteri more or R. Lee's twenty-third case seems to illustrate this :at the eighth month; three attacks during one intervals, renewed spontaneously with the utmo uteri thick and rigid; vagina filled with coas adhering all round the inner surface of cervix; then two fingers were passed between the placenta and uterus; a feet was felt and brought down into the vagina, and turning ecomplished with great difficulty, from the orifice of the uterus pasping like a rope the neck of the child. Labour completed in talf an hour by artificial dilatation, but the hæmorrhage continued in spite of all treatment, and complete exhaustion thlowed. She died in half an hour from loss of blood." (Clinical Midwifery, p. 377).

Dr. Collins gives a case of laceration of the uterus (No. 34) in mavoidable hæmorrhage. "There was no hæmorrhage on admission, but on examination the placenta was found at the mouth of the womb, which was not more dilated than the size of half-awwn, with its edge thick, but not very rigid. . . . . About an lour and a half after admission [into the Dublin Lying-in Hospital], suddenly the most profuse hæmorrhage set in, so much so, that in two or three minutes the blood was running in every direction over the edge of the bed : this was consequent on some wight uterine action. There being no chance of life without needy delivery, we determined to make the attempt, though the ports were badly prepared: accordingly the hand was very slowly cautiously introduced, and the feet brought down with little terrion: the uterus acted strongly, and felt well contracted after divery. The placenta came away with the child. whility succeeded the operation, with a slight discharge of blood mintervals; and, on examining an hour after, a laceration of the book of the uterus anteriorly, and to the right side, was disovered, commencing at its junction with the vagina, and exlending upwards. She died shortly afterwards." (Practical Irealise, p. 28). The child was saved.

These cases related by authorities of the greatest practical experience are sufficient to prove the danger of introducing the land into the uterus through a rigid os uteri. Dr. Collins's case as particularly striking, because the os was not very rigid, the utest care was used (and we have personal experience of Dr. dins's caution): nevertheless, the uterus was ruptured. Should separate the placenta here also? If in such a difficulty we

had no other alternative than to separate the placenta, or to turn the child, we certainly should prefer the former as a less dangerous operation; but if we reflect a little on the cause of the rigidity, we shall not often be placed in such a dilemma as this. Our own experience points out to us, that rigidity, such as is met with in difficult labour, very seldom occurs in an unavoidable hæmorrhage. The very presence of flooding prevents the os uten from becoming rigid, and generally renders it rapidly dilatable. The cause of rigidity here is the resistance of the cervix unprepared for dilatation. Hamorrhage may occur prematurely at the seventh or eighth month; the patient is at once reduced to the utmost danger by the flooding, if the os uteri be not ready to yield: the cervix is not sufficiently unfolded, but the practitioner, impressed with the conviction that something must be done instantly, forces his way into the uterus through all opposition, and a fatal result is the consequence. But if it were possible for us to retard the flooding in the first instance, so as to give the uterus time to dilate, it would do so more rapidly than under ordinary circumstance, and this danger might be, perhaps, avoided. We think that, if the means that we have before mentioned, the compression of the placenta, were properly carried into effect, it might save us from so great a hazard. If the membranes were ruptured, the waters discharged, the vagina carefully plugged, and ergot of rye with opium given, the hæmorrhage would be sufficiently stayed to give time for the os uteri to dilate. If, however, our efforts failed, we should separate the placenta in preference to turning, because it seems to us much less dangerous to pass one or two fingers within the os uteri, than to force the whole hand and arm through it while in this rigid state.

Summary. To sum up, therefore, the rules which we wish you to follow as the result of this discussion, protracted beyond what we could wish, we would advise you—

1. In a case where no exhaustion has taken place, or where it is but commencing, to turn and deliver the child the moment the os uteri is sufficiently dilated. If it be dilatable (and this is generally the case), you may pass through it, although it be not

than a crown-piece. If it be not so, by properly comg the placenta, and using other means to support the circuyou will prevent exhaustion from increasing, until you can the patient.

in a case of extreme exhaustion, with frequent fainting, ng pulse, rapid, laboured, perhaps stertorous respiration, g of the cheeks, jactitations, incoherency, general pallor idness of the surface, do not attempt to turn the child; separate the placenta, and leave the child undisturbed, ome decided reaction takes place. We are aware that this a direct infringement of the principle of those who look arror on the risk of allowing a woman to die undelivered.

When the os uteri is rigid, use every means to compress the a, and to increase the action of the uterus, so as to give to dilate, and to enable you to turn; but if hæmorrhage ease as to cause a dangerous degree of exhaustion, sepa-e placenta rather than force your hand and arm into the

## LECTURE XXVIII.

SPECIAL FORMS OF HÆMORRHAGE (continued).

ARTUM HEMORRHAGES may occur either before or after the ion of the placenta: they are far more frequent than those to been considering, and are too often the result of misment. Those that happen before the expulsion of the a are generally the most serious. In a former lecture p. 225-9) on the Management of Natural Labour, we out to you the importance of allowing the uterus to the child slowly, and, while it is doing so, of supporting the ting fundus with the hand, so as steadily to compress it; ed to you the necessity of bandaging the abdomen after

delivery, so as to maintain a moderate pressure on their and we cautioned you strongly against leaving the pair soon, lest she might be disturbed. An over-anxious not solicitous to make her patient "clean and comfortable," immediate advantage of your absence, and will most of busy herself in changing her apparel, removing the so clothes, etc. Your patient is consequently moved about sit up perhaps, and never allowed to be at rest until the satisfied. Now a neglect in any one of these partice cause retention of the placenta and hæmorrhage. If the uterus to itself, it may contract irregularly; if it be ported afterwards, there is the risk of its suddenly relabecoming filled with coagula: but if the nurse official manner we have described, there is the greatest possit that flooding will be the consequence.

Hæmorrhage, however, may occur notwithstandin and the most careful management. Some women a disposed to plethora; even during pregnancy there is to hyperæmia, and during labour the circulation excited. After delivery, if not before, violent flow place. On the other hand, the constitution of some in a state precisely the opposite: there is a dispanæmia; the uterus contracts imperfectly, and in such slight loss of blood may be followed by exhaustion, a dangerous increase of hæmorrhage. All these sever may produce flooding after the birth of the child; but that arising from mismanagement, is by far the most in

HEMORRHAGE BEFORE THE SEPARATION OF THE PLAC depend either upon inertia of the uterus, on irregula tion of its fibres, or upon morbid adhesion of the plac surface.

Inertia of the Uterus is equally the cause and the hemorrhage. If the uterus become exhausted from tinued efforts to expel the child, if it be enfeebled be stitutional cause, hemorrhage is the consequence. perhaps, it is slight; but, as the debility of the uterus it soon amounts to profuse flooding: the patient is place

in extreme danger, and the practitioner is in equal difficulty to cause efficient contraction of the uterus. This want of contractile power in the uterus becomes the chief object of his attention.

The Symptoms that characterise this condition of the uterus are very different from those that attend a mere suspension of its action after labour. The placenta is often retained simply because the uterus is not sufficiently excited to expel it, and the term "inertia" is as frequently misapplied in the latter as it is correctly used in the former case. You should be careful, therefore, not to confound the one with the other, but to recognise true inertia as soon as it presents itself: you may do so before my hamorrhage takes place, even when the child is being expelled. The fundus of the uterus has not its usual firm feel under the hand: it seems spongy or like dough, and is larger than it ought to be, because it very seldom contracts to its full extent. After the delivery of the child, the uterus does not remain contracted. You may have followed the contracting uterus with the hand, moderately compressing it, and in a short time you find that it has eluded your grasp, and cannot be felt. Strong frictions over the lower part of the abdomen may again excite its action; but only for a moment-again it is lost. While this want of tone is observed in the uterus, there is a corresponding amount of constitutional irritation in the patient, The pulse is increased in frequency, and assumes the jerking morrhagic character; the patient is watchful and restless; she complains of sinking, and does not experience the usual relief from the termination of her sufferings. All these symptoms may precede any hæmorrhage, and should be most carefully watched: they are the monitors of what is approaching. Hemorrhage renerally begins with a slight draining from the vulva, just sufficient to keep the napkins saturated; but in a short time, if no means for prevention be used, the stream rapidly increases to a brrent, deluging the bed, and forming a pool on the floor beneath.

the attendant be not on his guard, this may be the first notice of danger, because the patient is sometimes too much exhausted give any intimation of her condition; she lies on her side in a

listless, dozy state; syncope may follow, and hæmorrhag moment cease; it soon, however, returns with the pulse violent gush of blood places the patient at once in extremis; prolonged syncope returns, from which she may never resometimes a fit of convulsions precedes dissolution. I description we have assumed that there was either none least a very inefficient assistance, because we know of no which well-directed treatment is more effectual in arrestir consequences. By coolness and decision you may saw patient absolutely from the jaws of death: but if placed o guard by premonitory symptoms, you ought generally to the occurrence of such extreme symptoms. We say gen because there are some melancholy exceptions in which a constitution is irrecoverably prostrated by the first dischail

The Treatment of such cases must be directed, 1. To the tonic contractile power of the uterus: 2. To remoplacenta: 3. To prevent, as far as possible, any subrelaxation of the uterus.

1. To Restore the Tonic Contractile Power of the Uterus, I to accomplish this object, you must endeavour by every m your power to support the general circulation. Without at to this, mere local treatment would be utterly inefficient might possibly increase the danger. If there be great exha the patient should be given a drachm of tincture of or brandy: this may be repeated in more moderate doses, ut pulse becomes steady. If the stomach be very irritab reject this, it will sometimes bear cold broth, and morph be substituted for tincture of opium. Smellie used to give able soups dissolved in water. The patient should be ke perfectly horizontal position, which is not very easy exhaustion is commencing. The arms and legs should be w in hot flannels and blankets, the curtains drawn back, the raised, and a free circulation of air secured in the apa Locally, every means must be employed to retard the force circulation in the uterus. The most convenient mode is a bucket containing flannels, over which may be placed la ice, and a sufficient quantity of water thrown over the

flannels may be wrung out, and applied from time to time hips and vulva. At the same time that these means are carried into effect, the strongest pressure should be mainon the fundus uteri, to prevent its relaxation. The s of your treatment becomes evident when you feel the s first becoming distinct, and then more firm, under the In many cases the pressure is sufficient to cause the sion of the after-birth; but if not, it must be renewed. To Remove the Placenta. For this purpose, let one hand compress the fundus; or assign this duty to an assistant, y explaining what is to be done; and then pass the hand he vagina to the os uteri. Sometimes, by drawing down the again slowly, the back of it being pressed strongly against osterior wall of the vagina and the perinæum, the uterus is d to contract and expel the placenta into the vagina, e it may be removed. If not, draw down the funis to its xtent, as far as it will go, and let the hand in the vagina, d by it, press forward into the uterus. The fingers formed cone will readily dilate the os uteri sufficiently to admit the and here, again, it sometimes happens that the act of tion will excite a sufficient contraction to expel the placenta; you must proceed; but, as a precaution, it would be well e the patient a full dose of opium previously to entering the of the uterus. When the placenta is reached, do not at seize it in order to draw it down; rather seek to pass the above it, towards the surface of the cavity of the uterus. portion of the uterus is now placed between the introduced and that which compresses it externally through the abdoby increasing this pressure, the irritation very seldom fails using the uterus to contract; the moment this is observed,

he hand be slowly withdrawn, having the whole placenta it, and let a strong pressure be made on the fundus uteri nally. Thus, the placenta may be safely withdrawn; and, if terus be properly secured, no further hæmorrhage will take

To Prevent, as far as possible, any Subsequent Relaxation.

1 contraction of the uterus takes place, and it is made thus

made everywhere bu the uterus, when ma mode of preventing r the continuence of th fully bandaged. The application of object now is much support. It is necess presses are essential, a napkins, rolled up abo may be applied on each the fundus, but in a m that beneath, so as to fe down upon the fundus. tion by the bandage When a patient is bou she is recovering, no si the bandage: there is pin or two to get relief, deranged, and perhaps patient who has just cannot, therefore b

pads, the central one being the largest; the lateral ones are licker and narrower, and fold over the central one when not equired for use; these can be carried separately from the belt,



the, and when together are not larger than a small book. The best is of webbing, about three inches wide, and is fastened by a buckle and strap. It has attached to it Mr. Coxeter's improved turniquet, the screw of which is only half the length of the one on the old principle, and yet it raises as much web; so that this is easily carried." (Medical Gazette, Jan. 16, 1846, p. 117.) The object of this bandage is to maintain pressure on the uterus laterally as well as above the fundus, and to increase or diminish the pressure by means of the tourniquet: thus you may cautiously relax the pressure, or again increase it to any extent, without disturbing the abdominal bandage, which, in this case, seed not be so tightly applied as when you have no additional means of increasing the compressing force.

Although the hæmorrhage is thus arrested, your anxious duties

Fig. 133. Mr. Pretty's bandage. 1. Pad folded; a a, lateral pads ped; b, central pad. 2. Pads opened; a a, lateral pads; b, central laving the tourniquet, e, attached to it.

have not yet ceased; the state of the circulation and of i yous system must be closely watched. So long as the pulse pu its hæmorrhagic character, is quick, compressible, and jed if the patient remain watchful and restless, she is not safe, a no further hæmorrhage may be observed. Ergot of 17th valuable in rendering the contraction of the uterus more and permanent, and may be given either separately in i or in combination with opium; the latter medicine is in able until the patient has some sleep. Ice-cold napk still be applied to the vulva, and changed frequently, in notice any increase of hæmorrhage that might occur. I object of your attention is the disposition of your patient when the pulse and the respiration become more unifor lie quiet, and is inclined to dose, your anxiety is in degree relieved; but do not confound this natural rest stertorous dosing of exhaustion. Sometimes the patient sleep when lying on her back in the required horizon tion; and, although every other symptom is favoura watchfulness will cause you uneasiness. When this is it is advisable to change the patient cautiously to her at the same time to interpose a dry warm sheet between and the bed, already sufficiently saturated. The room s kept as cool and as well ventilated as possible, and at t time perfectly still; the senses are now unusually acute, slightest sound disturbs the patient. If you succeed treatment, and two or three hours' rest be procured, the tion is quite restored, all nervous irritation has disappe the patient rapidly recovers.

Irregular Contraction of the Uterus is frequently atter hæmorrhage, but generally not so severe as in the for the fact of the uterus being contractile makes an i difference. The fundus is sometimes very unequally  $\alpha$  which you may not perceive if you examine only its surface. When the hand is placed on the abdomen, t may feel sufficiently contracted, and yet the placenta is and hæmorrhage takes place: and, if a more careful exabe made, you will find the cause of this condition. Some

osterior surface is relaxed, or perhaps one side of the fundus is contracted, and the opposite not so. Whenever, therefore, the placenta is retained, and hæmorrhage occurs while the uterus sems to be contracted, do not at once decide that there is an bour-glass contraction, and proceed to remove the placenta; rather seek to equalise the contraction of the uterus by pressing firmly, but equally, over the whole fundus; pass the hand posteriorly over its sacral surface, and grasp the sides of the fundus with both hands: this irritation often succeeds in restoring the proper order of uterine contraction, and expelling the placenta. If this be not sufficient for the purpose, the hand may be introduced into the vagina, within the os uteri, or into the cavity of the uterus, in the manner we have described in cases of inertia: the uterus will then contract and expel the placenta. It is very seldom necessary to enter the cavity of the uterus in these cases; the uterus has not lost its contractility, and is therethe much more easily excited into action than when there is nertia.

Stricture of the Cervix Uteri is not by any means a frequent cause of retention of the placenta; and when it happens, if bemorrhage take place, it is generally internally into the cavity of the uterus. The placenta is usually detached from the surface of the uterus, and is only prevented from passing into the vagina by the stricture. The blood, that in other cases flows away. collects and coagulates above the placenta. The coagula increase is size and number until they distend the uterus; their irritation weites its action, and an increased discharge of blood and more coagula are the result; the uterus yields to the distension until becomes almost as large as it was before delivery, and internal hemorrhage to a very serious extent sometimes takes place: mptoms of exhaustion suddenly present themselves, and the matient is at once found to be in the greatest danger, when perhaps the practitioner has been very patiently expecting the celivery of the placenta, quite unconscious of what has been going forward, because no discharge from the vagina has been observed. The pulse is feeble, almost imperceptible; the patient

is restless, and disturbed by retching; the uterus is en enlarged.

The Treatment of such a case is obvious. The stir be overcome, the placenta and coagula removed, and traction of the uterus permanently secured. In order the stricture, it is necessary to draw down the funis, as it on the stretch, to pass the hand along through the os uteri into the cavity of the cervix: this seems l might be expected, and hence you might readily it hand was in the cavity of the uterus; but if the fu followed, it will be found passing through this cav opening that seems like a rent in the uterus—the strk cervix. When you arrive thus far, it is necessary cautiously; one or two fingers may be first introduc effort gently made to distend it; a third may be admi fourth, until you have a cone formed by the fingers, be pressed steadily forwards through the stricture. stricture offers great resistance, but when it yields, it does so rapidly, and admits the hand into the cavity of here you find the placents and an enormous quantity ( all which must be removed with great caution. If suddenly withdrawn, hemorrhage and a dangerous synd follow. It would be desirable to previously give t some stimulant, with opium and ergot; in fact, to means to induce an uniform and adequate contract uterus, while the hand is being withdrawn with the pl the coagula. When this is accomplished, there is no danger of any subsequent relaxation of the uterus, as inertia; but it would, nevertheless, be advisable to gu its occurrence.

These cases are sometimes called hour-glass of the uterus. One cause of deception arises when the is made to pass the hand into the uterus. The larm enter the vagina, pushing the uterus before it that the practitioner supposes he must have entered the then feels the os tincæ contracted, gets the fingers through it into the cavity of the uterus, and removes the

which he is now convinced was retained by an hour-glass conraction of the uterus, the os uteri being mistaken for the contracted portion.

The accident which may truly be called "hour-glass contraction" is, according to some authors, of frequent occurrence; they record many instances of it: others, however, speak of it as being mre. We are inclined to the latter opinion; we do not think it at all so frequent as it is described: very few cases of it have fallen under our own observation, although we have been summoned more than once to supposed cases of hour-glass contraction, when none at all existed, the mistake arising in the way we have explained—the os uteri being mistaken for the stricture. You must therefore be cautious to avoid confounding the one case with the other, and to recollect that in true hour-glass contraction the hand passes, as it were, through a double stricture, the first being at the os uteri.

Morbid Adhesion of the Placenta, when it is partial, always causes hæmorrhage, but when it is complete does not do so. The latter, however, is very rare; we can only remember to have the twith one case of the kind: the former variety is frequent, is the proper object of our attention. Hæmorrhage from the cause is not generally so severe as in inertia uteri, because the true is, to a certain extent, contracted, and the morbid alteration the placenta assists in preventing the flow of blood from this three: there is generally a draining hæmorrhage going on for the time, until the constitution begins to feel the effect of it; thaustion suddenly presents itself, with an increase of the temorrhage, and the patient is placed at once in danger.

Morbid adhesion may be readily ascertained by observing the effect of pressure on the fundus uteri—it feels hard and firmly intracted, nevertheless the placenta is unmoved. If, while ressure is so made, the funis be drawn down to its full extent, may be brought out of the vagina some distance, just as when placenta is following it; but the instant that the hand is oved and the uterus ascends, the funis is drawn up again into vagina.

When the cause of retention is known, there is only one mode

of Treatment-the placenta must be removed. The funis w conduct the hand to the placenta, generally somewhere near centre: from this point the fingers should be directed towards the circumference, so as to find the portion that has been detached when this is found, the separation of the remainder is general easy; but it is very necessary to separate the placenta, if possible completely, to leave nothing behind, because a very small pa of the placenta thus allowed to remain attached may continue t hæmorrhage to a serious, if not to a fatal extent. Sometime you may not be able to find an unattached portion, in which ca the separation is rather more difficult. The margin of the placenta is not so easily ascertained as you might suppose: t smooth membranes that cover its fætal surface prevent you fro detecting the edge of the placenta plainly; you cannot use the er you may feel the soft mass of the placenta, and can distinguish from the firmer and more unequal surface of the uterus; but it necessary to break through the membranes to detect the edge the placenta. This is often very difficult to separate, because adheres so firmly to the uterus; but when it is detached, t remaining portion peels off easily. The nature of the adhesion however, may prevent this: the vessels of the placenta may broken through, the fingers become entangled; and the great portion is removed, but some part is left behind. In such cal the closest attention must be paid to the subsequent treatment the case: there is a risk that hæmorrhage may be renewed, the chief danger to apprehend is absorption of the decompos and putrid residue of the placenta into the circulation.

HEMORRHAGE AFTER THE SEPARATION OF THE PLACENTA IN depend upon inertia of the uterus, upon an over-excited circulation in a plethoric patient, or upon mismanagement. The last is far the most frequent cause: the patient may be too soon disturbed after her delivery, for the purpose of changing the dresor bed-clothes, or her friends may keep her in a constant state excitement by their kind but too officious congratulations. To result is flooding. Again, if she escape these dangers immediately after delivery, your patient may be allowed perhaps the third or fourth day to get out of bed: the circulation is again.

## HEMORRHAGE AFTER REMOVAL OF PLACENTA. 485

excited in the uterus, still very large and easily distended, and bemorrhage is the consequence. She is not even safe on the with or fourteenth days. One of the most alarming hæmortheges we ever had to treat occurred on the tenth day after beivery. The lady had gone on very well up to that time; but while she was sitting up in the evening in her bed-room, enjoying a searty supper and the society of some friends, the stimulus of he one and the excitement of the other brought on a most mexpected and violent flooding, which required the utmost exertions to arrest. All these cases are derived from mismanagement. Plethoric habits are very liable to hæmorrhage after the separation of the placenta; and of these, some may be said to have a hæmorrhagic temperament. The circulation is excited to great degree during labour; and if the patient escape hæmorthage before delivery, if your cautious management prevent fooding before the expulsion of the placenta, still it is sure to follow sooner or later afterwards. This is the kind of case which Gooch describes, when he speaks of hæmorrhage notwithstanding the uterus being contracted: "For many hours before the accession of labour the patient was flushed, and had a very full quick pulse. Abstinence from meat, wine, and warm drinks, a ool room, and a saline purgative, diminished but did not remove this state of the circulation, which continued in a considerable begree when the child was born; it was expelled very gradually, and after the removal of the placenta the uterus felt in the hypoastrium contracted in the ordinary degree; nevertheless, about twenty minutes afterwards, there came on one of the most frightfal hæmorrhages I ever witnessed" (Diseases of Women, pp. 333-4). This patient had similar attacks in every succeeding confinement; nor were they prevented, until Gooch, for some time before labour began, placed her under the strictest surveillance. By a rigidly abstemious diet, saline purgatives, a scruple of nitre three times a day, he at length succeeded. " After the birth of the child, and the removal of the placenta, the uterus contracted not more than in her last labour; but not the smallest degree either of flooding or faintness took place." We cannot express better the mode of managing these cases, than in his own language. "How often," he says, "a disturbance of the circulation plays an important part in uterine hæmorrhage, it is difficult for an individual to know; but I suspect sufficiently often to deserve the especial attention of practitioners. I advise them, when they meet with patients subject to hæmorrhages after delivery, to notice the state of the circulation before labour, and, if disturbed, to employ means for tranquillising it before labour comes on. I advise them during labour to use cordials cantiously" (we should say not at all) "lest the placenta should separate during an excited state of the circulation. I advise them after delivery, though the uterus may feel contracted, to be slow to leave their patient, if the circulation is greatly disturbed "(Ibid. p. 338). In these directions we cordially agree.

Uterine Inertia sometimes continues longer after a delivery than might be expected, and will cause hæmorrhage even at the tenth or fourteenth day. We witnessed the occurrence on the tenth day of flooding, which was nearly being fatal, in a poor emaciated woman, to whom we have already alluded in a previous lecture (xv. p. 238). By careful attention to her while in the hospital, she gradually gained strength; but on the tenth day, while she was sitting up for the first time, flooding came on, attended with syncope and great exhaustion. She would have died, had it not been for the most energetic measures. We think that opium, in large doses, saved her. The case, however, forms a striking contrast to Gooch's, and shows you how the most opposite causes often lead to precisely the same results. To treat a case of this kind successfully, you must, as in the former instance, commence before labour, and follow a course opposite to that recommended by Gooch. Good diet, if it can be had, before labour, and even cordials during labour, may be necessary to give such a patient proper support. After delivery, the greatest caution must be used to increase the tone of the uterus: ergot of rye is indicated, with tonics. If hæmorrhage occur, opium is the best remedy to control it.

## LECTURE XXIX.

## PUERPERAL CONVULSIONS.

Convulsions are the next subject for our consideration—a most alarming and dangerous complication of labour. There is no attack to which the parturient woman is liable, of so frightful an appearance, or that causes more terror to the by-standers; there is none in which the practitioner is more called upon to stercise a calm self-possession, or where he must be more careful not to suffer himself to be disconcerted by the dismay of anxious friends. An attack of puerperal convulsions may be considered as the climax of nervous irritation. You may observe from the first period of conception, throughout the whole pregnancy to the time when labour has commenced, a succession of symptoms, which are the result of nervous sympathy (as it is commonly alled) with the function of the uterus. The stomach and digestive organs, the brain, the heart, all give evidence of irritation caused by the phenomena going forward in the uterus. The spinal and ganglionic systems of nerves are called into unusual activity, and hence we find that they are more easily excited, and more readily deranged in their functions during regnancy and labour than at any other period. The most exfreme and dangerous result of this excitement is convulsions.

Varieties of Puerperal Convulsions. Puerperal convulsions may occur at any time during pregnancy; but their most frequent period is on the approach or during the progress of labour. They do not always present the same characters: on the contrary, an important difference may be observed in the symptoms they present. Sometimes these attacks assume all the characters of epilepsy, sometimes of hysteria. Cases present themselves where symptoms of apoplexy predominate, and give

that character to the fit; and again we find that these paroxyms are the final symptoms of extreme hæmorrhage. A similar form of convulsions takes place when the action of the heart is at its maximum, and when it has almost ceased from loss of blood. Some writers describe puerperal convulsions as if all forms were alike. Others enumerate varieties, and speak of epileptic, apoplectic, anæmic, and hysterical convulsions. We shall propose for your consideration three forms—1. Sthenic or Hyperamic Convulsions; 2. Asthenic or Anæmic Convulsions; 3. Hysterical Convulsions. These are essentially distinct in their characters and in their treatment.

STHENIC CONVULSIONS have been confounded with epilepsy, apoplexy, and even with hysteria; the same name has been applied to opposite varieties, and hence much confusion has arisen both in the description and in the treatment of this dangerous attack. To remove this source of perplexity, we shall first direct your attention to those convulsions which are clearly the consequence of labour, and then examine the varieties that depend upon irritation of other organs than the uterus, or which are the result of certain conditions of the constitution.

Sthenic convulsions occur most frequently in patients who are of a plethoric habit, in whom the circulation is unusually active, and where we have every evidence that blood is in excess. In such instances, the irritation of any organ largely supplied by the ganglionic nerves will cause convulsions, when the spinal system is predisposed to irritation in consequence of the newly excited function of the uterus. Thus a hearty meal, a sudden fright, a loaded state of the intestines, will cause an attack independently of labour. But when labour begins, when the action of the uterus is powerful, if it meet with much resistance to its efforts, and its action be impeded by uterine congestion, convulsions are frequently the result.

Puerperal convulsions may seize the patient either before or in the progress of labour, or after it has concluded. Those that occur before or in the commencement of labour generally depend upon the irritation of some other organ than the uterus, and hence are much more fatal than those which are the result of labour: in fact, two ources of irritation are acting upon the spinal system in place of Dr. R. Lee relates the case of a lady who "returned home ter midnight from a large dinner party, at which she had parsken of a variety of dishes and wines, and had been seated sfore a large fire" (Clinical Midwifery, p. 17). Labour came a soon afterwards and with it violent convulsions. Another wient " being in the eighth month of her pregnancy, dined on arry and rice, and ate bacon and eggs for tea" (Op. cit. p. 19). The following day she had convulsions and premature labour. Both these were fatal cases; and in each the stomach was a primary, the uterus a secondary source of nervous irritation. Violent mental emotions act precisely in the same manner. More commonly, however, these are not the causes that induce the woxysm; on the contrary, labour proceeds to a certain point without interruption: the action of the uterus is perhaps powerat the head large, and the resistance to its advance great. A sere struggle arises, congestion takes place in the uterus, the mins are interrupted, a morbid irritability is excited, which is ammunicated to the spinal centre, and thence reflected over all muscles in violent convulsions. The uterus alone is the source diritation here, and therefore the cause of the attack is more unly removed.

Premonitory Symptoms often give timely warning of what is that to happen. Some women during their pregnancy are liable wheadache, throbbing of the temples, giddiness, ringing in the tax, motes and flashes in the eyes: they are easily flushed, especially after a meal, and sometimes there is a puffiness about the tex, an addenatous appearance that is very suspicious. Again, the time of labour there is a peculiar restlessness about these patients: they are intolerant of their pains, and in the middle of a violent exclamation are perhaps seized with a paroxysm. A evere rigor in the progress of labour, especially in the second tage, has been remarked by the late Dr. Hamilton as a sure addication that convulsions are approaching.

The Symptoms that characterise the fit are very much the same in epilepsy. For a moment the whole body is fixed, the face rows livid, the eyes are drawn upwards and outwards, the mouth

the mouth is retracted an are violently clenched, ar if not between them; a de of rapid expirations, acco characteristic. The legs violent succussion of the sometimes the room are two or three minutes; and regains somewhat of its fo up beneath the lids, and although some twitchings the patient then falls into be temporary. When sh around her, seemingly unc theless, she dreads the reta as if she were aware that them, but she could not uterus is in no way sus increased: and hence a lat caused the convulsion, p rapidly after the fit. The not always, fatal. There

indices a fit, and consequently much meddling in this way will artainly do mischief. The appearance of the urine also deserves mention. Dr. Lever, Dr. Simpson, and Dr. Cormack, each have inected the attention of the profession to its albuminous state, which taken in connection with the exdematous condition of the stace, would indicate the existence of renal disease in many artunces.

Convulsions as modified by Apoplectic Symptoms. In this excription, we have confined your attention to puerperal conraisions when uncomplicated with any secondary attack; but his is not always the case. Apoplexy may supervene, and render the result much more dangerous. Women who are liable to such mattack are generally short, plethoric-looking persons, with florid complexions and short necks, just such as apoplectic patients are stally described to be; but sometimes this is otherwise. We have with cases of a very opposite character, where symptoms of essbral congestion very like apoplexy followed convulsions. the majority, it is true, were such as we have mentioned; and in the lower walks of life especially we have seen cases of this kind mong women with low foreheads, in whom the animal predomiused over the intellectual development of the brain. These patients were violent in their tempers, addicted to the use of stimulants, very intolerant of their pains; and if labour were potracted, they were seized with convulsions, often accompanied by symptoms of apoplexy; but other women attacked in a manner precisely similar were delicate-looking persons exposed to privations, and had many causes of intense mental anxiety.

Apoplectic symptoms modify the convulsive paroxysm. It is not so severe, at least in appearance, neither is the succussion quite so violent. There is less distortion of the features, but the findity is greater and more permanent; the eyes are more fixed; the pupils are dilated, or strongly contracted; they are not influenced by light (Dr. Ramsbotham has seen the pupil dilate on the approach of a candle); the mouth is drawn to one side, the countenance is bloated, respiration is deeply stertorous, and the cheeks are puffed out in expiration. During the interval between the fits, the patient is quite comatose; she lies snoring, insensible

well-directed seldom roused from this stupor, from which she i in the least influenced b the pains return regular and, unless some unusua pleted without any assist. may also be observed in Such cases are certainly themselves. Before we enter upon necessary to reflect a little to obtain, if possible, clea be observed in the charact tution of the patient. N more confusion in the ru down than the practice of treatment to the different for labour; and still more so, o the same principle in very No one commits the error

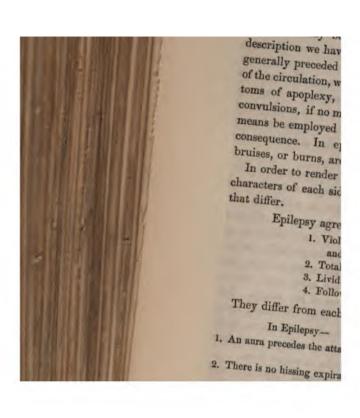
hyperæmic convulsions and

sions in the same

such as we have described them, have been generally considered epileptic; such is the term applied to them by many authorities. Dr. Ramsbotham, however, believes them to be a modified form of apoplexy. "I look upon a case of puerperal convulsions to be, in fact, one of apoplexy, only that we have superadded to the summon apoplectic phenomena violent spasmodic contractions; and this symptom is dependent upon the irritable and excitable rate of the nervous system always in a greater or less degree ecompanying pregnancy and parturition" (Obstetric Medicine, 1. 456.) We confess that we cannot accede to either of these News; true puerperal convulsions seem sufficiently distinct from both epilepsy and apoplexy to render it necessary not to confound hem. It is quite true that epileptic convulsions may occur during labour, and that apoplexy is often the consequence of puerconvulsions; but the paroxysms of the attack we are describing may occur independently of either.

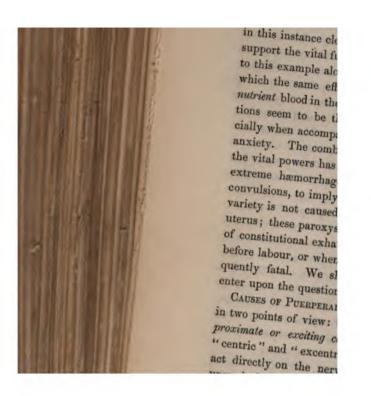
If our attention were confined solely to the physiological view of these convulsions, we must admit that epileptic and puerperal convulsions agree essentially in the manner in which all the voluntary muscles are excited: they agree also in their effect on the muscles of respiration; and we find that their influence on emsation, volition, and the mental faculties, are perfectly similar. We may therefore infer, that the proximate cause exciting the convulsive movement is influenced in the same way, and is equally set in motion by the remoter causes of the attack. But these causes are by no means alike in their character, there is a pathological difference between them, which must make a very important ground of distinction, when we have to consider the proper treatment to be pursued in order to arrest them.

Epilepsy and Puerperal Convulsions compared. Epileptic and puerperal convulsions differ in the way in which they are produced: they do not exactly agree in all their symptoms, and there is an important difference in their effect on the constitution of the patient. Epileptic fits occur in the most unexpected manner; there is no evidence of any exciting cause for the attack; the patient may have been perfectly well, at least apparaently so, when suddenly a creeping sensation, an aura as it is



eral convulsions nearly agree in the form of attack, but differ the manner of their incursion, and in the ultimate course that bey take. If, therefore, you confine your attention solely to a hysiological view of the subject, they agree in nearly every articular; but if you look a little further, and consider carefully he whole of the symptoms, both before and during a paroxysm puerperal convulsions; if you take into account the previous salth of the patient, and the extreme danger of a fatal terminaion to a number of paroxysms succeeding each other at short ntervals, you will perceive an obvious difference between them. When these convulsions so nearly agree in their physiological haracters, it may seem to you something very like "splitting airs" to make this distinction: the term " epileptic " (you will at) applies to puerperal convulsions equally well as to the waxysms of epilepsy. We cannot think so. We should wilearly call puerperal convulsions "epileptic"; only, if we did so, we did not point out the essential difference in their pathological spect, you might imagine that, being similar diseases, they emired a similar treatment. If the excellent suggestion of Dr. Marshall Hall were adopted, if the term "epileptic" were disanded, and some generic term applied to embrace convulsions aving certain physiological characters in common, there would be this difficulty; but as terms are at present used, inasmuch puerperal convulsions are, in their treatment, essentially disanct from epilepsy, we are desirous that you should separate each convulsion as far apart in your mind as possible; and, therefore, to assist you, we shall call them by a different name: the terms "thenic" and "hyperæmic" appear to us to convey the essential character of the convulsions we are now discussing.

Are Hyperamic Convulsions Apoplectic? Dr. F. H. Ramsbotham, who seems fully aware of this blunder, and who is equally anxious that the profession should avoid it, describes puerperal convulsions as being a form of apoplexy; not only for the purpose of drawing them away from their notions about epilepsy, but also with the object of guiding them into a more correct idea of the proper treatment of these attacks. In a practical point of view, therefore, any mistake is on the right side; but still we think



Predisposing Causes of convulsions are hyperæmia, anæmia, mi toxæmia—an excess of blood, a loss of blood, or an impure blood.

When blood is in excess, and the circulation is excited, an irritant, which at another time would have no effect, may, under such circumstances, cause convulsions. An indigestible meal, for stance, or an excess in spirituous potations, have brought on an etack; so also in such habits the action of the uterus, especially then powerful, has induced convulsions.

When blood is deficient, as in cases of extreme hamorrhage, the one effect is produced, sometimes without any direct irritation: but especially if the uterus be exposed to any new excitant, as the introduction of the hand to turn the child or to remove the placenta, convulsions are frequently the consequence.

When blood is impure, convulsions may also take place. Albumuria, we know, produces renal convulsions; we have now efficient evidence to prove that it predisposes to puerperal contitions.

Epilepsy has been considered as a predisposing cause of pueraral convulsions, but we greatly doubt that such is the case. We have met with several cases of labour in epileptics; and, led by the assumed identity of these attacks, we dreaded conralsions, but none took place. Drs. Hardy and M'Clintock secord the same experience; they state that "it does not appear females who are subject to epileptic fits are more liable on that account to attacks of puerperal convulsions. On the contary, it would seem that they enjoy an exemption, and that even the epileptic attacks occur with less frequency, and with a mitimed severity, during pregnancy. This certainly was the case three or four instances of pregnant epileptic females who came uder our notice." (Midwifery, p. 269). Dr. Tyler Smith has paced fifteen cases of epileptics. "The number of pregnancies the fifteen cases amounted to about fifty-one. Puerperal conrulsions of a decided character only occurred in two labours. hone, there were three attacks of convulsions after the eleventh abour of an epileptic patient, and in another there was a single sizure the day after one of five labours" (London Journal of Medicine, vol. ii. p. 87). In fact, the predisposition seems to lead in the opposite direction. Pregnancy and labour have the effect rather of suspending than of exciting these attacks.

Proximate Causes of Convulsions. The causes which immediately excite the paroxysm are more difficult to expose, because they are wrapped in the mysteries of the nervous system.

If direct mechanical irritation be applied to the medulla oblongata, precisely the same convulsive action is excited as take place in puerperal convulsions; hence we infer that the proximate cause is some irritant of the medulla oblongata. What is the irritant? It may either be direct or indirect; that is, certain conditions of the blood may act as direct excitants; or irritation of the peripheral nerves of the uterus or of any other vital organ may be reflected upon the medulla and become an indirect excitant. These two sources will embrace all the assigned cause of convulsions. Some authors have considered local congestion and consequent pressure of the blood on the medulla, as a proximate cause; but this can hardly be true, because precisely the same effect is produced in extreme hæmorrhages where the pressure is altogether removed. Pressure on the brain may cause stupor, coma, stertor, paralysis, but it is not so clear the it produces convulsions. Nervous sympathy has been assigned by others. This is correct when considered as a popular expression to signify reflex nervous action, but the term is too vague to attach to it a sufficiently precise meaning. The influence of the gravid uterus on other organs-the sympathies of pregnancyare often the best evidences of health: but the irritation of which we now speak is a morbid action that takes place only under special conditions; we shall not, therefore, adopt a term that may create confusion in our idea of a proximate cause.

The direct proximate cause of convulsions is impure blood; for instance, when the kidneys are unable, from Bright's disease, to fulfil their proper function of eliminating urea from the blood, renal convulsions take place. So, also, it has been ascertained that the convulsions of pregnancy and labour are sometimes accompanied by, and dependent upon, disease of the kidney. The most remarkable symptom of this disorder, the presence of

nen in the urine, has been met with by Dr. Lever in almost case of puerperal convulsions; his observations have been med by several other practitioners: hence the question . Is albuminuria always the cause of puerperal convulsions? impson inclines to the opinion that it is more so than is ally supposed. In the cases of puerperal convulsions with h we have met, the majority were strong, healthy young en, without any cedema, who did not impress us with the that they were labouring under a chronic disease; neverthehere are cases, perhaps numerous, where œdema is present, where convulsions have their origin in this disorder. How we to explain the presence of albumen in the urine of en of the former class, who give every indication of rude h? Dr. Cormack has endeavoured to resolve this question. supposes that the pressure of the gravid uterus on the gent veins causes congestion of the venous circulation of idney; it is known that such congestion has the same effect bright's disease; the albumen is taken from the blood and rea left. Hence he attributes convulsion in healthy young en, pregnant for the first time, to congestion of the renal , caused by the gravid uterus, which, in such cases, is pressed strongly backwards by the tonic contractions of the abdoparietes. Ingenious as this theory is, we fear to adopt it ese instances; first, because the pressure exercised by the id uterus is too gradual to cause any great amount of conon-the circulation has sufficient time to find new channels self, and relieve the emulgent veins; secondly, because the od of the attack would be more frequently at the last month of stion or the commencement of labour than we know it to be. are rather disposed to consider this congestion of the kidney albuminous urine to be the effect of another cause, than a timate cause seipso of convulsions. We may, therefore, n albuminuria as a predisposing, and the consequent urity of the blood as a direct proximate cause of convulsions. he indirect proximate causes appear to play the most prominent in these attacks. We have sufficient proof that morbid tation of the peripheral nerves that supply any vital organ,

over the voluntary muscles in we be able to refer convulsio morbid irritation of the organi brain, stomach, bowels or ute it would be clearly illogical to and the same effect in the same irritation of the afferent nerves reflected through the medulla in not go further and puzzle oursel

Taking, then, this view of the we adequate proof that morbid ir convulsions? and if so, What irritable?

Will uterine irritation produce question, we shall quote the exper who says: "I have met with the strongly impressed me with the (viz., that the affection originate uterus, and the irritation is puthe brain), "the most striking of called some years ago, by one

Maternity Charity, to the assistan

rhage, the uterus was not strongly contracted, and the placenta entirely within it. Under no greater anxiety than I usually feel when the placenta is retained, I proceeded in the ordinary way remove it. The moment I had passed my hand completely ato the uterine cavity, the patient turned upon her abdomen, and without uttering any expression of pain, went into a convulsun, though not of the violent kind: intense coma supervened, which yielded to no treatment that I could devise, and terminated stally in about two hours from the removal of the placenta. The vagina, and especially the inner surface of the uterus, communicated to the hand a more pungent sense of heat than I recollect to have experienced on any other occasion" (Obstetric Medicine, p. 568-9). Dr. Ramsbotham then quotes, from the late Dr. Ingleby work on uterine hæmorrhage, another instance of a similar kind. "A highly-esteemed friend of mine" (Dr. I.) once found it necessary to pass the hand into the uterus for the purpose of removing an adherent placenta, the ergot of rye having been previously administered: the introduction was carefully performed, the straining and opposition on the part of the woman were exceedingly great; and at the moment when the operator's hand had reached the organ, my own hand making counterpressure on the abdomen, the patient became violently convulsed, and died in less than a minute" (Ingleby on Hamorrhage,

A case very similar to this once occurred to ourself. The patient had a very severe attack of hæmorrhage after the delivery of the child, and before the expulsion of the placenta, which induced me to remove it. We did so without any difficulty; but, like Dr. Ingleby's patient, ours resisted the operation. In the struggle she was seized with convulsions, and died in a quarter of an hour. Such cases are not rare exceptions to the general rule, and they form so many proofs that convulsions are produced by irritation of the uterine nerves. We find, also, that when the uterus is emptied of its blood, or is too full of blood, the same effect is produced.

What renders the uterus thus morbidly irritable? This question will require a little patient attention. We know that, in cases of

protracted or severe labour, the large head of a male child forcing open for the first time the passages, is in itself a very powerful irritant, not only of the uterus, but of the vagina, thus causing "extensive reflex muscular actions." It appears to us, however, that this alone is not an adequate cause: if it were so, cases of puerperal convulsions would approximate much nearest in number to those of difficult labour than they appear to do. Dr. Collins reports four hundred and thirty cases of protracted labour, and only thirty cases of convulsions. Drs. Hardy and M'Clintock mention two hundred and fifty-nine cases of tedious and difficult labours, and but thirteen cases of convulsions. We quote from these reports, because we know that severe labour was a frequent cause of puerperal convulsions in the Dublin Lying-in Hospital. The operation of some other excitant, besides undue distension of the passages, seems necessary to explain this effect. The condition of the circulation and its influence upon the nervous system are important elements in the inquiry. The intimate relation that subsists between the nervous and circulating systems is a matter of every-day observation: the nervous function cannot be deranged without the circulation being excited; neither can the equilibrium of the circulation be destroyed without the nerves, in one way or another, giving evidence of irritation. Let us, then, examine whether, in cases of convulsions, there is such a disturbance of the circulation in the uterus would warrant us in attributing to it a morbid excitation of its nerves, and consequently a corresponding irritation of the medulla, so as to cause convulsions. Nothing seems to us more evident. If we except those cases that are referable to the irritation of other organs-as the brain, the stomach, the kidney, the intestines, we find that the majority of cases occur when there is either an excess or a deficiency of blood in the uterus-When the uterus is nearly deprived of its blood, we have seen that the introduction, ever so gently, of the hand, will cause convulsions; and sometimes they take place without this irritation. Congestion of the uterus appears to have just the same effect. In the majority of cases, there is every evidence of plethora: the premonitory symptoms are those of an over-excited circula-

tion: the action of the uterus is impeded by the excess of blood circulating through it; the pains do not, therefore, produce their full effects; at length nervous irritation is excited, and convulsions take place. You perceive, then, that it is not alone the irritation of the cervix of the uterus or vagina distended by the large head of a male child, that will induce convulsions in cases of difficult labour; but this irritation accompanied by an excess of blood in the uterus, just as the introduction of the hand, produces the same effect when there is a deficiency of this rital fluid. You may recognise this difference, if you observe closely cases of difficult labour. In one example, you will notice protracted pressure on the cervix uteri, on the vagina and perinaum, causing local congestion, tenderness, inflammation, He, but no convulsions. In another, you may observe every symptom of hyperæmia of the uterus: its contractions become hort and interrupted - we might add, unusually painful: the efforts of the uterus are thus for some time fruitlessly continued, and at length are superseded by the convulsive paroxysm.

If, then, we admit that irritation of the organic nerves of the nterus is frequently the proximate cause of convulsions, and that this irritation is produced by an excess of blood in the uterus, we should not confound cause and effect: we should not mistake for a cause, the congestion which the commencing paroxysm always produces at the nervous centres. The convulsive fit has the effect of interrupting the circulation in every way; first, as Dr. Marshall Hall has clearly shown, by the direct pressure of the platysma myoides on the blood returning from the brain; secondly, by the spasm of the glottis impeding respiration, and preventing the passage of venous blood into the lungs; thirdly, by the pressure on the venous circulation of the extremities, the blood, by the spasmodic contractions of all the voluntary muscles, being forced too rapidly forward into the great central trunks; and lastly, by the increased pressure on the venous circulation in the uterus, in consequence of its more powerful contractions producing a similar effect. It is not surprising, therefore, that with ench an accumulation on the venous side of the circulation, we should find every proof of pressure on the brain, and symptoms

former, it accompanies the cocease.

We have seen that the irrevulsions in the same manner uterus into action. This also puerperal convulsions: but, not the cause of the attack: labour, or both come on si

puerperal convulsions: but, not the cause of the attack: labour, or both come on sin difference, also, in the danger vulsions, and those that are th excited by severe labour may dition of the uterus that pr upon the irritation of other o ment, because the cause of th removed; and, even where it still the induction of labour n centres. In the former case, tion to deal with; in the latte puerperal convulsions are the tion, of disease of the kidne much more fatal.

SUMMARY A.

Apoplexy is an effect of the paroxysms which may or may not follow from them.

- 2. The predisposing causes of puerperal convulsions are either access of blood (hyperæmia), a deficiency of blood (anæmia), simpure blood (toxæmia).
- 3. The proximate causes of convulsions are chiefly excentric, bing the morbid irritation of the afferent nerves supplying the different vital organs. Impure blood, as in albuminuria, a centric cause.
- 4. Morbid irritation of the uterus is the most common proximize cause of puerperal convulsions, the result either of hypermia or anæmia. Hence the division into sthenic or hyperæmic convulsions; and asthenic or anæmic convulsions. Under the head we include not merely loss of blood, but poverty of blood; because the effect seems to be similar, only differing is degree.
- 5. Morbid irritation of other organs also causes puerperal conrations; because, during pregnancy, and at the time of labour, the nervous system is more excitable than at any other period: and hence any organ may easily be rendered morbidly irritable. Puerperal convulsions so caused are much more fatal than the immer, because the nervous centres are exposed to a two-fold curve of irritation—the organ primarily affected, and the uterus that is secondarily excited.
- Intense pain is an emotional cause, which may induce contalions independent of the condition of the circulation or the blood.
- 7. In the whole of these phenomena we must perceive a beautiful illustration of the reflex nervous function: the peripheral nerves that supply the affected organ rapidly communitating the irritation to the spinal system, which, as an excitomolor centre, radiates the irritation over the whole of the roluntary muscles, and the muscles of respiration, in violent convulsive paroxysms. Even the involuntary muscles, as the about and heart, do not escape, but give every evidence of meatly increased muscular contractions.

influence in controlling the if judiciously given, will unnecessary: when it is ad be combined with tincture irritation of the intestines. Delivery of the Child. have to consider is, the d morbidly irritable, and the remains in its cavity. Show apparent conclusiveness of t to immediate delivery, withou tion that may be necessary for either by the forceps, the c circumstances. We very mi tice as a general rule. We duction of the forceps when is sufficient room for the ap if the head be impacted, and we feel any difficulty about child, or to pass the hand it purpose of turning it, on th removed, appears very obie

by placing the patient under the influence of tartarised antimony; the force of the circulation is reduced by the nausea excited, and the labour proceeds more favourably to its conclusion. It is a great importance to notice quickly, and to avert with promptime, these premonitory symptoms; because we are persuaded that decision at this stage of the threatened attack may prevent a latogether, while hesitation and feebleness will only more certainly determine the paroxysm.

If, however, convulsions seize the patient unexpectedly, the int object of your attention is to save her from being injured twing the fit : a cork should be placed between the teeth, in order preserve the tongue from being cut. In the violent succussion of the fit, the patient may be jerked from the bed; she often throws realf about the bed with great violence; you must prevent her from being hurt, by removing everything out of her way, but not, recollect, by holding her down with all your strength: this is a my common mistake. We have seen the bed surrounded by finds, some holding the body, others the legs and arms, as if by could thus stop the convulsion. The only effect of their pertions is to exhaust the patient: she complains of great fatigue soreness when she recovers herself. Nothing more should done than to prevent her from falling out of bed; the less the stralsive paroxysm is restrained the better; you may, however, minish its severity, or possibly arrest it, by exciting a nervous lock—cold affusion is sometimes found very serviceable. Denman and to recommend that a large basin of cold water be placed within reach, and, when the fit was commencing, that the face hould be dashed with a whisk. We have adopted this practice fequently, and with complete success: the paroxysm was somestopped altogether, and if it took place, it was much less talent than before.

The general treatment of the case can only be undertaken when the fit is subsiding, just as the stage of coma is approaching. Depletion, to the extent we have stated, should be at once carried into effect; it would be advisable also to administer an active atturtic enema—a terebinthinate enema is the most efficient for the purpose. The head, and especially the back of the neck,

Delivery.

Natural
Forceps
Crotchet
Turning

This abstract from the the comparative mortality. livered by the natural et crotchet, the mortality is a difference, it is in favour of operation of turning the chil was just doubled.

So far, therefore, as the convulsions is concerned, we the action of the uterus (wh delivery; at the same time of severity of the paroxysms.

ordain cases, as preternatural presentations, turning is unavoidable; but this rarely occurs. The more usual practice is to turn the child in vertex presentations, under the erroneous impression at if the child be not at once removed, the danger will be only increased. There is much more danger in the operation

In this summary of treatment, we have confined your attento one form of the attack, where there was an excess of od in the uterus, the labour perhaps severe, the uterus rended morbidly irritable, and convulsions the result. We shall examine another variety, which may well be contrasted with the have been considering.

THATMENT OF ASTHENIC OR ANAMIC CONVULSIONS .- Anæmic complsions from loss of blood are the final and the fatal sympof extreme hæmorrhage. With this we have nothing to but asthenic convulsions from a deficiency not only in the sufity but in the quality of the blood sometimes take place; they present themselves, they are always extremely dan-A very slight loss of blood occurring in a constitution wiously debilitated by poverty and privations will induce the buysms; and sometimes they take place without any loss of od. Dr. Lever relates a case that will afford an excellent cample of this form of convulsion. "Eliza H., aged thirty-six, abour with her fifth child. When seven months' pregnant, had a discharge of blood about a week previous to her four. She was much depressed in spirits, and complained of ding weak; her pulse was feeble-80. She had been living in a We of the most abject penury; for two or three months subsistfor days on a single meal of bread and tea. Her face and were covered with cachectic sores. She had several fits of rulsions before expelling a small living female child. After birth of the child she lay insensible, and could not be made verallow either medicine or sustenance; the pulse remained extingly feeble-72; the convulsions continued to recur, though sowerfully than before, and, as depletion was contra-indi-, abundant dashing of the face with cold water was the only by which circumstances permitted to make use of. A full dose

and slowly revived, and lescence" (Guy's Hospital We have quoted this ca very clearly the characte proper treatment of such tution will predispose to t not have been saved, had Hospital. The medicina no doubt did much; but v and wine, the improved n received, did much more for cause that induced the con cumstances they may ari Lever relates another cas there is no mention made o to a case of this kind, in v viously; she was living in many privations; there wa easily gave birth to a living pains she was seized w paroxysm never recovered rapid and feeble, and altho

so that, in addition to impoverished diet, there was a certain at of mental depression in operation to induce such an at. Thus you may observe that deficiency not alone in the tity but in the quality of the blood will cause convulsions, inlly when accompanied by its general attendant, mental ssion. Unless these cases have the advantage of kindment and nourishing diet, as well as medical assistance, they generally fatal.

ense pain in irritable habits leads to convulsions; and when is the case, chloroform becomes a most valuable remedy—
i more than depletion, cathartics, or any of the means dy referred to. We were called to attend a lady, pregnant her first child, January, 1861. Labour made a regular avourable progress from 6 o'clock A.M., to about 2 o'clock there was no difficulty, nor any congestion of the uterus, but ains were very acute. She would not take chloroform, and, a woman of much fortitude, she struggled to command if, but int he contest she became giddy and lost her sight, and alsions followed. She was bled, without controlling the ks. Chloroform was then administered with perfect success; aroxysms were at once controlled; tranquil sleep followed, the convulsions did not return. A still-born child was reed by the forceps, and the lady perfectly recovered.

th cases may be met with, but they do not belong to either relasses we have described; their treatment, therefore, is cent, and proves the value of chloroform, not only as a dy in such an attack, but as a means of preventing it.

may be stated as a rule, that convulsions occurring during bancy, or before parturition, are more dangerous than those haccompany or follow labour. The former depend upon neous causes; the latter upon the uterus: the former may with women who have had many children; the latter occur invariably with the first child. In the latter, hyperæmia most prominent constitutional feature; in the former there ery evidence that the constitution is suffering from debiling causes. Such is the conclusion that appears derivable a comparison of the series of cases reported by the late

botham's Observ. pt. ii. p.
most judicious treatment
saved his patient; but
cases.

We have wished to con
because they are as equall
characters. Depletion, ta
antiphlogistic treatment,
primiparæ. Stimulants,
and counter-irritation, are
a broken-down constitutio

and counter-irritation, are a broken-down constitution Opium, as a remedy in consuccess: it has been highly. This apparent opposition is reconciled. Opium may be attempted to control by its convulsions. So long as the operation, a kind of strugg the remedy, that generally the convulsions; but when debility, it acts as a stimulate and arrests the fits. It is

ty, and of the convulsions consequent upon it, a nutritious cautiously administered, is of more efficacy than medicines. The bowels are usually constipated, and it will this irritation may have been the immediate cause of the attack. It is always advisable, therefore, to procure a free atton from them before opium is administered. When these sizes are necessary, the warm stimulant cathartics are the such as aloes, assafeetida, turpentine, etc.

pletion is contra-indicated; generally it cannot be at all oved: in some instances, nevertheless, it may be used with in. When convulsions take place, venous congestion rays the consequence : it is necessary to relieve this, which sometimes be done by the sudden shock of cold to the Dashing the face with cold water will sometimes cut the convulsions and relieve the congestion; but this may sufficient, and therefore depletion is required. The safest led is to cup the back of the neck, to take six, eight, or ten s of blood, and to follow this by counter-irritation. A blister, mstard poultice may be applied over the part that was ed. When blood is thus taken from a circulation already cently feeble, great attention is necessary to support the th of the patient, and to maintain the temperature of the The lower extremities should be kept constantly ged in warm flannels or blankets.

dangerous here than in sthenic convulsions. In both cases peration renews the paroxysms, which continue long after try; but in the asthenic form, this alone may determine its determination; while in sthenic convulsions there is still that the constitution will maintain itself until they gradually ide. Beside this, in the former variety there is less difficulty in the latter in the expulsion of the child; consequently is less reason for a precipitate interference.

Peral Convulsions, which are generally much more fatal than

labour act only as patient who at any excess in eating and when labour is app more favourable mon if labour be near, in fatal termination. A syncope if pregnanc cannot be controlled. stomach, or intestines, of the uterus, gives ris that we meet with. The Treatment of su organ that is the prima emetics which are pron zinc, etc., are the most anodynes may be give loaded, active purgative necessary. If the brain the back of the neck, con in full doses, purgative required; but if she he o

retraction increases, until at length their impatience, and the everity of their sufferings, throw them into a paroxysm of avulsions. When there is such morbid irritability of the nersystem, the pains of labour are more intense than in a persity healthy woman. Hysterical females often suffer from a largic pains during their labour: their sufferings are consecutly greatly increased, and these convulsions may be looked from as the result of extreme nervous irritation, and consequent shanstion of nervous power: hence we find that the action of the uterus, in place of being increased, is suspended by the aroxysm, thus affording a diagnostic sign to discriminate these from the former puerperal convulsions.

The Symptoms that characterise the convulsion are the same as reimilar to those observed in ordinary hysteric fits. The patient may complain of a sense of oppression at the præcordia, and feel globus hystericus in her throat; but most commonly the intenmy of her sufferings absorbs her entire attention, until suddenly be convulsions seize her. She is generally loud in her expressions of agony, throwing herself violently about the bed, and, when he pain is at its height and her torture at its climax, the body becomes at once rigid as if in a tetanic spasm. We have seen a atient thrown into a complete opisthotonos, the head and heels Mone touching the bed. Irregular convulsive paroxysms succeed, presenting every variety of character. Sometimes the muscles of the abdomen and the lower extremities are spasmodically contracted, while the arms are thrown about, and the face is in envulsive action; or the whole body may be thrown into convulsions, and the patient roll about the bed in its paroxysms. Other esses approach the characters of the true puerperal convulsions: the patient being seized with a distinct and violent rigor, followed by a state resembling coma. We are quite convinced, however, that this apparent insensibility is not true coma: the loss of consciousness is, we might say, simulated; the patient hears everything that is said, and a little deception has sometimes a very calutary effect in arresting the paroxysms. We have known a patient become quite tranquil, when she overheard a consultation about an operation for her delivery. If the fits have ceased, a

vaginal examination will certainly renew them, but in a v different manner from the true puerperal convulsion. In latter case, the patient is quite unconscious of the examinati and makes no resistance to it; still, a paroxysm follows the a but in the former she expresses the strongest reluctance, a struggles violently against the examination, in the midst of whith the convulsions take place. Respiration is hurried and irregulated there is no hissing expiration, nor spasm of the glottis.

Diagnosis. Hysterical convulsions, like the disease to whi they belong, simulate other convulsions; and therefore you m meet with cases so closely resembling those that are truly put peral, that you will find it very difficult to distinguish the from the other. A very embarrassing case of this kind on presented itself to us. When the paroxysm was approaching the patient ground her teeth, smacked her lips, and foamed at mouth: the features became distorted, and the whole body thrown into a tetanic spasm. A violent rigor succeeded, so as shake the bed, and a distortion of the features, very similar sthenic convulsions, was observed. As the fit subsided, she into a doze, breathing loudly, almost stertorously: still she w not sound asleep, she was very easily disturbed, and, if a attempt were made to give her drink, or make a vaginal exami ation, she at once became restless, tossed about in the bed, a almost brought on a second paroxysm. When left alone, awoke from this imperfect doze, and looked round, at first uno sciously, but, as if suddenly recollecting herself, withdrew fr observation, and hid her head in the bed-clothes. In this there was no perfect loss of consciousness; and this, taken in o nection with that absence of the respiration peculiar to the convulsion, was sufficient for the diagnosis.

Hysterical convulsions differ very much from true puerpe convulsions in their effect upon the uterus; the latter general hasten the progress of the labour; the former always retard and protract the delivery.

The *Prognosis* is very difficult. Hysterical convulsions never dangerous; true puerperal convulsions are always so; if hysterical convulsions be the result of some great mental she

then they are the most dangerous, because they are the forerunners of the worst form of puerperal convulsions.

The Treatment of hysterical convulsions also differs from that which is found the most useful in hyperæmic convulsions—depletion, tartar emetic, and such like antiphlogistic remedies, cannot be employed. You may look upon a case of "this kind as being one of nervous exhaustion, that depletion will increase: for the same reason, tartar emetic, and other remedies that depress the circulation, are objectionable. Our first object should be to arrest the paroxysms, which may be done by the use of cold water dashed against the face, to cause a shock to the nervous system. It has the same effect in stopping the paroxysm here as in the sthenic convulsion, but not alone from its direct effect on the nerves. The patient has not lost her consciousness, and shows every evidence of dislike to so disagreeable a remedy. She therefore exerts a certain amount of mental control, and the convulsions cease.

In hysterical patients, the bowels are generally very irregular, frequently constipated, and the large intestines loaded with scybala: the evacuations are dark-coloured, and most offensive; hence the irritation of hardened fæces often causes and maintains the convulsions. Strict attention should, therefore, be paid to the state of the bowels—an enema of turpentine or assafætida is often of great service in removing such irritants, and shortening the fits. When the bowels are completely relieved, the diffusible stimulants, such as ether, ammonia, camphor combined with opium, generally procure the patient some sleep; but, in convulsions of this kind, chloroform is of much service and will generally control the paroxysm.

The treatment of patients liable to such attacks is most successful when undertaken before labour begins. Here, especially, prevention is better than cure. If, during pregnancy, the state of the digestive organs be attended to, the bowels kept open, and the character of the evacuations improved, the risk of such attacks during labour will be greatly diminished.

## LECTURE XXXI.

## RUPTURE OF THE UTERUS

RUPTURE OF THE UTERUS is the most fatal of of labour. Some years ago, the Profession looks of treatment with despair. Smellie laid it down t be done; and we find one of his pupils, in his of ruptured uterus, stating with evident satisfact to your prudent advice, I spoke nothing of the nounced her a dead woman" (Smellie's Mi p. 386). Denman also argued that, "when th tured, both reason and experience shew that better chance of recovery by resigning the cas effort of the constitution, than by any operatio of art" (Essay on Ruptured Uterus). The case A. Douglas, led him to think something migl since his time, recoveries from this serious acc from time to time, reported; which prove, the cases, we are not to despair, but rather to examin the principles of treatment.

GENERAL CONDITIONS. Rupture of the ut during pregnancy or during labour: we shall d tion to those lacerations only that happen during

The Seat of the Laceration varies. It is most at the junction of the cervix uteri and vagina; i cervix alone, or extend through both it and th times the vagina only is ruptured. When the is generally either anteriorly, opposite the pubes pectinea, or posteriorly, opposite the promontory it may, however, be rent at the sides, and occasion

attends through to the fundus. The rent may pass obliquely dis, or be transverse: thus, the cervix has been torn comprison the body of the uterus, the vagina from the cervix. It is valuable monograph on the subject has been published. Trask, in which he has collected not less than four hundred seventeen cases of this accident. One hundred and eight occurred during parturition, and the situation of the thus given:—

aring Labour. Of the entire number of cases, one hundred in are distinctly spoken of as involving the cervix; sevenne fundus; and seventy-one the body of the womb. Of seventy-one, by far the larger part are reported as ruptures anterior or posterior part, or of the right or left side; and e of these, it is highly probable that the rupture involved vix also "(American Journal of Medical Sciences, July, p. 106).

198 cases.

deration may be Partial or Complete. In some cases the lar fibres alone give way, leaving the peritoneum uninin others, the peritoneum and a few of the external fibres anterus are torn. Sir C. Clarke, Drs. J. Ramsbotham, s, Lever, and others, relate cases of this kind, and describe opearances: the posterior surface of the uterus presented a er of transverse fissures, as if cut with a knife.

ptures may occur in the First or in any Subsequent Labour. Trask has given two hundred and thirty-nine cases in which abour is mentioned.

Pregnancy	ist	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	several	
Cues	31	25	30	27	21	25	14	7	7	12	8	5	2	25	

Female Children. The prove that lacerations with more than two to one fem

Dr. Collins
Drs. Hardy and M'Clinto, Sinclair and Johnsto

Total.

Thus, in fifty-nine case only eighteen girls.

Disproportion in the Pethe obstruction is recorded and of these at least seven
These three facts—a first pelvis—being found so free the uterus, the conclusion tracted laboure.

"Time from the Beginning of Labour to Rupture. Taking the bole of our [Dr. Trask's] cases in which this is specified, we find that rupture occurred in—

6 hours and less from the beginning of labour in 38 cases,

12 hours and over 6	,,	,,	36 "
18 hours and over 12	**	"	10 ,,
24 hours and over 18	"	",	20 ,,
36 hours and less	- 0	"	16 "
48 hours and less		"	14 ,,
3 days and less	"	"	11 "
4 days and less	"	"	2 ,,

" Total . . 147 cases."

Op. cit., p. 105.) Thus, then, it appears that in 104 of these cases, the rupture took place within twenty-four hours' labour, and in only forty-three beyond that time; and further, that while it occurred within six hours from the beginning of labour in thirty-eight cases, there are only two instances of the accident in a four days' labour.

We cannot, therefore, justly assign protracted labour as a prominent cause of ruptured uterus. You may also observe that, although these lacerations are more numerous in first labours, the difference between the first and any subsequent delivery is not that. All labours seem to be equally liable to rupture of the merus; and the causes of this accident must be sought for in the other source than the mere duration of labour.

CAUSES OF LACERATION. These may be divided into mechanical and pathological.

Mechanical Causes. When the head of the child compresses to neck of the womb strongly against the pelvis, either anteriorly sainst the linea ileo-pectinea or posteriorly against the promontary of the sacrum, it may be so pinched that the action of the fundus tears it. In this way anterior and posterior lacerations of the cervix are commonly explained. To the same class of chanical causes may be referred ruptures from violence. The to Dr. Campbell related a case in which a rent in the cervix, gina, and perinæum, was caused by dragging with the forceps

Ingleby related a case in to deliver by turning, passe of the vagina into the abdo eleven children had been in wife turned and delivered a the patient gave a loud screen delivery": she died in two of the uterus through the 1842, vol. i. p. 796). We : (Dr. Trask has collected twe sufficient to prove the di mechanical violence in opera cause depending upon misma administration of ergot of r is so extensively used, has be of the uterus. We have alre on the life of the child; we the life of the mother. Mr. powerful dose of ergot of ry regard to a very rigid os ute set up. After some time, expired. The post morten

venty, in good health, and in labour of her first child: after ours' labour, the os uteri was nearly dilated; the waters, and she seemed doing well; her attendant, however, gave ose of ergot of rye; the pains were increased, but the head; she was found exhausted; the shoulder presented, and ld was turned; she died in a few days (Journal Prat. Montpelier).

ese cases, the laceration was caused by the violent action uterus which this medicine excited; and we are the more to bring them before you, because the attention of the prohas been very little drawn to this cause. Dr. Trask's opinion point so perfectly coincides with our own, that we have tation in adopting his language. "The medical journals," rves, "for obvious reasons, contain but few cases of rupom the imprudent administration of ergot. There can be ot that the injudicious exhibition of this drug has been ree of infinite mischief. It is difficult to obtain data upon pject; for few in whose practice such cases occur would be d to report them, and those met with in consultatione are kept secret from motives of delicacy. Dr. Meigs s 'that in some of the cases he has seen, at least three d the ergotic contractions induced by the imprudent exhiof secale cornutum.' Dr. Bedford, in his valuable addi-Chailly's Midwifery, most earnestly directs the attention lents to this subject, and states that he has in his museum ombs ruptured by the improper use of secale cornutum" can Journal of Medical Sciences, vol. xii. p. 391).

Pathological Causes of ruptured uterus especially deserve on, because they are as yet imperfectly understood, being artially inquired into; and we believe their influence in aduction of this accident is much greater than is generally sed. When we were attached to the Dublin Lying-intal, we had the opportunity of closely observing the cases othered uterus that occurred there, and were surprised to many deviations from the descriptions given of the essential eters of this complication. Believing it to be produced by solent action of the uterus which tore itself in its efforts to force the head of the child through a contracted anxiously for it in severe and protracted la causes are in operation, but no such effect to other hand, we were surprised to find rup where no mechanical causes adequate to expl thus, while in one case the most powerful ac went on and gradually overcame the difficultie perfect safety, in another, a succession of fee pains suddenly ceased and were followed by a rupture; in a third, the patient went th apparently without accident, nevertheless, in wards there was every evidence that laceratic These anomalies led us to examine more caref of laceration; and a rich and, at that time field of inquiry presented itself; the uterus one or another morbid alteration. In 1 published in the Dublin Journal of Medica p. 198), pointing out such morbid appeara themselves. What were then only suspicions fullest confirmation from obstetric authorities the direct evidence of illustrative cases. In in an elaborate paper on the subject, directed ; profession to the morbid condition of the complete des Ruptures et des Dechirures de then, several authors allude to "thinning" and uterus as causes of rupture; and now the lacerated uterus is deemed worthy of inqu partial atrophy of the uterus is not an unfre examples of this morbid change presented notice. Dr. Collins mentions another, statin was not thicker than strong brown paper (Trea Trask quotes a case related to him by Dr. Ch where the part in which the rupture occurre membrine." Several other cases are recon

attenuated part is described as being "thin a

th," etc.\* When a change of this kind takes place, the coms are often very obscure. There may be a very extensaceration without any severe pains, or any of those nent symptoms that often precede the accident. You can take what would be the effect of ergot of rye, if it were to increase pains rendered feeble from this morbid confort the uterus.

ening is another pathological cause of laceration. The tissue seems to be the first tissue affected; the mucous mane may then be involved, but the peritoneum generally . This morbid change may be only slight, affecting a the nterine fibres; or it may be extensive, converting the d portion of the uterus into a putrid mass. Thus we have a kind of aneurismal sac formed in the parietes of the in consequence of a partial rupture of the uterine fibres; iptoms of laceration shewed themselves during labour, nor appear until several hours afterwards, when the sac burst. same manner may be explained some of those obscure f sudden and fatal hæmorrhage some days after delivery. Ilins relates one, in which the patient was seized with flooding on the fifth day after delivery. She died in an and, on dissection, it was discovered that a patch of the of about the size of a shilling had given way, corresponding projection of the sacrum (Treatise, p. 288).

Collins mentions another case of this character, which will a its peculiarities. "A woman was delivered of her sixth

Trask, in his last paper (American Journal of Medical Sciences, i56), further remarks: "The cases now presented afford still further ation of the views urged more especially by Dr. Murphy, and ted by our previous statistics, that a diseased condition of the womb ently met with in cases of this accident... We have sixty-seven a which the condition of the womb happens to be reported. In a only it is reported healthy; in twenty, softened; in twenty-one, it in one, thinned and softened; in three, both thinned and ned; in eight, 'diseased;' in one, thin and brittle. The larger proposed in the condition of the womb is stated among the low presented, is probably due to the fact, that attention has been quite recently turned to this point" (p. 102).

child (a head-presentation) after eight hours; immediately after delivery there was a considerable gush of blood; the hæmorrham continued to increase in an alarming degree, and she died in thirty hours. After death, the inner coats of the vagina and outeri were found ruptured to a considerable degree." Some of the fibres of the cervix and os uteri had evidently been softened and gave way, the rent extending into the vagina. Hence the thirty hours are the child was expelled forcibly by the uterine action nor was there any difficulty in this delivery of the head; the placenta, too, was thrown off without assistance. "She had a symptom of rupture except extreme exhaustion, nor was her labous severe with the present or any former child" (Treatise, p. 396).

A review of several such cases as these points out the progres of this disorganisation in the uterus. It commences in the fibroustructure, which then yields even to a slight force; hemorrhay immediately follows. The effused blood may be, for a time, confined between the lining membranes of the uterus; in one cap pressing inwardly toward the abdomen, and detaching the peritneum from its surface, at length it gives way, either at a point of in a rent more or less extensive; in another, it may open of the mucous surface, and produce severe external hemorrhage. When the uterus is thus perforated, the symptoms of rupture that had formerly been obscure and doubtful, now become quit distinct and intelligible.

The extreme of this morbid change is that condition which is called Putrescency of the Uterus. A more extensive softening of tissue takes place, which converts the affected portion of the uterus into putrilage. Such cases have been met with, when puerperal fever was rife; and are, therefore, attributed to the action of a morbid poison. Severe inflammation will sometimes produce it, as has happened in some of those neglected cases where the labour has been severe and protracted, and where inflammation has set in and has proceeded to this dangerous extent before relief has been afforded.

Cracks in the Peritoneum complete another form of ruptur that may be referred to this class of causes, although it is ver difficult to explain how they are produced. It is very clear, the anical causes can have no possible effect, because the rents ot at the cervix, and the peritoneum sometimes gives way labour, and in other cases very soon after it has comd. Mr. White (Dublin Journal, vol. v. p. 325); Mr. dge (Medico-Chir. Trans. vol. ix. p. 72;) Dr. J. Ramsbo-Dr. Lever, and Sir Charles Clarke (Transactions of Assofor the Improving of Medical and Surgical Knowledge, i.), each quotes instances of this kind. In all these cases, parent cause leading to the accident was trifling. In Mr. 's case, the patient turned suddenly round from fright before began. Mr. Partridge's patient was seized in the eighth of her pregnancy with sudden pains in the abdomen, and ing. In Sir Charles Clarke's case, the peritoneum was torn we hours' labour. Some predisposing morbid cause must been in operation in these cases. We suspect that it prothe same change on the outer surface of the uterus, that we dready noticed on the inner; that is, softening of the fibrous We know that in the healthy uterus the peritoneum is mately attached to the fundus uteri, that it is extremely It to separate it; but when the structure beneath it is softened, tached quite easily. Hence slight effusions of blood from ted fibres might be formed beneath the peritoneum, raising n the surface. If such were the case, any accident that determine blood towards the uterus might so increase the n, that the peritoneum would give way, producing the that have been observed. In this point of view, Mr. Pars case is very worthy of attentive consideration.

PTOMS.—These are never uniform. Sometimes they are mrked and distinct, sometimes exceedingly obscure; they e so obvious that all doubt as to the accident is removed, or ertain from their gradual development, that the injury is

cognised until some time after it has happened.

monitory Symptoms may be either present or absent. The usual notice of danger is the violent action of the uterus, panied by intense pain; this symptom is especially dangeif the patient have complained, before labour, of pain in the situation as that to which she at present refers it. In certain and is immediately folloshock, accompanied by th is extremely pallid, havin a clammy sweat breaks o mouth; the lips are livid, succeeds, which is general immediately rejected, the e of the stomach mixed wi colour of coffee-grounds. The general surface is co pulse scarcely to be felt; it of 150, and often irregular unequal; the usual oval place, a large and firm tum either at one side or protru In some cases, the child m abdomen. Hæmorrhage m and the head, if presenting it should not, great care m amination, lest it may do completely into the abdo

vidence of rupture is the cessation of pains: even this has taken for uterine inertia, and ergot of rye has been given ase them. Again, in certain cases, labour is completed amy indication of mischief: nevertheless, laceration has ace, which soon afterwards becomes manifest. So severe ent generally causes a violent constitutional shock; but cases where neither the stomach, nor pulse, nor respihave been in the least influenced at the time of the accie patient lying perfectly tranquil, expecting the return of The symptoms of constitutional irritation have appeared ently, and in a more gradual manner. In the majority , however, it is otherwise; the altered form of the abdobe recognised, and considered as a diagnostic mark of THENT will need a careful examination: promptitude and are essential in order to give the patient a chance of y, and yet a decided step in a wrong direction may place once beyond all hope. We have to consider two quesfirst, Can we prevent laceration from taking place? y, How are we to proceed when rupture occurs? ention of Laceration. The unexpected manner in which eident often happens, without a single premonitory sympwowing itself, is evident from the cases we have related: we also proof how frequently the laceration is the result of a s morbid change in the uterus. It would be, therefore, ely unjust to lay it down as a principle, that rupture of rus may be prevented, or to attribute so frightful a catasto any want of attention or foresight on the part of the Soner in attendance: yet this seems to be rather a popular The practitioner who has been so unfortunate as to meet of this kind, is seldom free from the most unjust suspicions; n the other hand, "the lucky man," who has had an mity from this accident, is sometimes inclined to attribute rior skill what is only the result of his good fortune. You generally prevent laceration of the uterus; but there are ases in which the violence and severity of the pains, and sistance to the action of the uterus, are so great, as to give

you timely warning that interference is necessary. In all such instances, the previous history should be accurately inquire into, in order to ascertain any evidence of disease of the utera Inflammation commencing in the passages must always be considered as a premonitory symptom; because, if it proceed, it may be the proceed of the pr

Treatment when Rupture has occurred. This consists in a immediate removal of the child; in obviating as far as possib the shock which the constitution receives from so serious a accident; and using your best directed efforts to assist nature repairing the injury. With regard to the first point: the facility of delivery, and the chances of a successful issue, depend to much upon the position of the child at the time of the accident If the head be in the pelvic cavity, the case is more favourable than when the child has escaped into the abdomen, and there less difficulty in deciding on the proper course to pursue: I shall therefore consider each case separately.

When the Head is in the Pelvic Cavity, it may be remove either by the forceps or by the crotchet. The forceps may used, if it can be applied without disturbing the position of head; but if there be any difficulty in the application, or least risk of pushing back the head, you should remember 1 the uterus no longer exercises any counter-pressure on the chi and that you may displace the head altogether in making I attempt. The danger of pressing the head against or through the laceration is too great to authorise this mode of delive under such circumstances. When the life of your patient is such imminent peril, the safety of the child is of no important and should not weigh in the selection of the instrument employ; but all hesitation on this point is removed by the that the child is nearly always destroyed by the accident. comparing the merits of the crotchet and the forceps for t purpose you have now in view, the only question to determine is, which instrument is the least likely to displace the head? there be sufficient room for the forceps, use it; but if the he be at all tightly fixed, so as to require any force in its app cation, we think the crotchet preferable if it be properly use adily understand that in such a case as this you could te in the usual manner. If you were to apply the to the most depending part of the head, and press gainst it, you would displace it far more effectually ly application of the forceps. In order, therefore, to as to prevent displacement, it is necessary to direct tor, placed on the pubic side of the head, from before Let the point of the instrument be applied to the ediately below the symphysis pubis, so as to fix it he perforator and the sacrum; press the instrument ne sacrum until the opening is made, and having thus far, pass the forefinger within the opening before ator is withdrawn; the crotchet may then be introthe head drawn down.\* While this is being done, t should press firmly on the child in the abdomen to from receding. When the child is delivered, the nust be taken away; as it is generally separated from at the time of the accident, and forced into the abdoeat caution is required in removing it, lest the laceracreased. The hand is conducted by the funis to the rough which it passes. Do not follow it, nor attempt our hand through the rent into the abdomen; rather n the placenta by the funis to the opening in the uterus, your to get a portion of the placenta through it with ossible disturbance. Having succeeded thus far, you away the remainder without any difficulty.

he placenta is removed, the next point we are generally be observe is, to replace the intestines if they protrude ne wound. This is not at all necessary, and may be sectionable. We very much doubt that in any of these re is the least risk of strangulation of a protruding

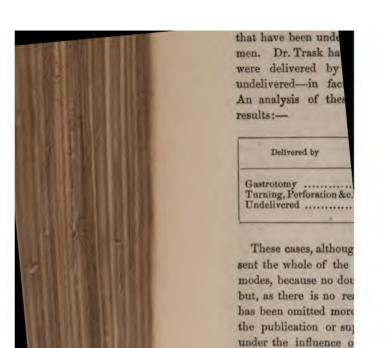
ontrivance suggested by Dr. Arnott, and put into practice by impson, might be preferable to either forceps or crotchet. An er cloth disc applied to the head, and maintained there by an syringe, would perhaps better answer the purpose.

intestine. What is to strangulate it? The contractions of the uterus would have an opposite effect, because they would increa rather than diminish the rent. It is quite possible, that if in portion of the intestines could get within the opening before the child is withdrawn, the contraction of the uterus that follows it removal might cause strangulation: the rent that was expande by the body of the child to several inches, may be reduced to m or two when it is taken away; and if the intestines pressed in and occupied the former space, they must become strangulate when the opening is so much reduced: but this is very unlike to happen, unless in those cases where the child slips complete into the abdomen, so that the intestines fall within the rent while it is in the act of contracting.\* In the case we are now discussing it is more usual for a loop of intestine to descend and fill up to rent after the contraction of the uterus, when its size has been reduced; there is therefore no danger of strangulation from con traction of the uterus, because none takes place, and if it did, if rent would be increased. The necessity for replacing an intesting so situated is very doubtful, nor is by any means so practical as it is described to be; you may push back the protrude portion, and find after the first fit of retching, more intesting down than before. The chief objection, however, to this practic is not merely that it is useless, but that it might be injurious by disturbing too much the coagula surrounding the laceration and increasing the irritation of the peritoneum by manipulation The principal object of treatment, from the commencement the termination of such a case as this, is to keep the lacerate wound perfectly at rest, and to remove from it every possible source of irritation: for this reason, therefore, it is better leave the intestine undisturbed, than to make useless an injurious attempts to replace it. The remarkable case recovery related by Dr. M'Keever (Essay on Rupture of Uterus in which a considerable portion of intestine protruded, not only

<sup>\*</sup> Dr. Trask gives twenty-four cases of hernia of the intestines through ruptures, and only one of strangulation.

ito the vagina, but from the vulva, proves the possibility of testoration under the most unfavourable circumstances: we need therefore, feel much apprehension about the minor prolapse intestine that generally occurs.

When the Child has escaped into the Abdomen, the case becomes hopeless as to raise a doubt in the minds of the most eminent ractical authorities as to the propriety of its removal. "Reason and experience show," says Denman, "that the patient has a etter chance of recovery by resigning the case to the natural stats of the constitution, than by any operation or interposition Mart" (Midwifery, p. 242). The case of Dr. Andrew Douglas, in which, though the uterus was ruptured, he turned the child, patient recovered and afterwards had children," led Denman alter his opinion. "If no other case had been recorded, this would have been of sufficient authority to render it in future the daty of every practitioner to attempt without delay to deliver the entient, and, bad as her chance certainly would be, to be strenin using all the means which art dictates to extricate her, possible, from her imminent danger, and to preserve the thid." Arguing in this manner, on the authority of one or successful cases of turning after rupture of the uterus, the has been laid down, that when the child has escaped into the abdomen, it should be removed by this means. Yet it appears to us, that you could not adopt a more efficient means depriving the patient of all chance of recovery than by making sich an attempt. Reflect for a moment on the steps of such an pention; the hand and arm are forced through the laceration, be coagula pushed aside, and the rent increased. Can you expect to escape a renewal of hæmorrhage? You proceed to atroduce your hand into the peritoneal sac, and, to use the vivid anguage of Blundell, "you perceive the intestines, feel the beat of the large abdominal arteries, touch the liver, and ultimately each the feet of the child." These being drawn down and the child turned, there yet remains its extraction through the laceraion; the limbs, the body, the shoulders, the head, passing like wedge, tearing open the wound to its fullest extent. What ope could you have of the patient's recovery after such an



tionate mortality here

i we must arrive when we reflect upon these different f treatment.

ave already pointed out the extreme danger of turning, to now appears, is almost as bad as abandoning the case er. It remains for us to consider the operation of gasits advantages, and the objections to it. When the is thus opened, and the child removed from it, two it objects are gained: the original wound is left perfectly bed, and the child is removed much more quickly, and difficulty, than is possible by turning, especially when is is contracted. The importance of facility in delivery, iding the shock of a severe and protracted operation, is by Dr. Trask's researches. He gives 161 cases of delivery ent modes, with the following results:—

	Saved.	Lost.	
ery accomplished with ease	48	38	
with more or less difficulty	22	53	

statement exhibits," as Dr. Trask justly observes, "most vely the influence of a speedy and easy delivery on the chance of recovery, by showing the great preponderance deliveries in those who survive, and of difficult deliveries who sink."

ust possible that the child might be saved by its quick from the abdomen. Among the cases quoted by Dr. Trask, ere three instances in which the child was saved by gas, but none in which it survived when removed from the a by turning. Professor Bedford, of New York, had see of ruptured uterus (two of them arm-presentations) in the turned and delivered the children living; but these by were withdrawn from the uterus, not from the abdomen. Sety of the child, however, is a secondary question: the oject of our attention is to give the mother the best chance

of being preserved in so serious an injury. It is the necessary to bear this in mind, because popular prejudice at a perfectly opposite conclusion. The only condition of it recognises the operation of gastrotomy is for the pur saving the child when the mother is dead or dying. The "cutting the child out of the belly," in order to save the tunate patient, is quite unintelligible. If this operation, th be undertaken at all, its object should be clearly understa explained; because to perform it when the mother is dy the mere chance of saving the child, would be cruel extreme, and justly deserves the eloquent reproval of Dr. B "Who that has a heart of flesh in his bosom could or down in a real case to argue for the advantage to be der the fœtus from the performance of Cæsarian incisions, be maternal life is totally and beyond all doubt extinct? W has a heart of flesh in his bosom could have firmness suff perform this operation under such circumstances? look on the dying eyes of his patient without suffering th to drop from his hand? Who would like himself to be di at such a moment? As long as men are surgeons, surely s may continue to be men" (Midwifery, p. 709). your efforts is to save the mother; and therefore this of should only be performed when there is a reasonable ch its success - as great, at the least, as the operation of turn child. The objections to the operation are, the assumed of opening the cavity of the peritoneum, the risk of ad hæmorrhage, the increased shock of the operation, and the difficulty to repair a double injury. To these object might easily reply, that the peritoneum is already expose no hæmorrhage of any importance can take place; that a means may be used to obviate the shock which may be pr and the wounds that have been made (both lacerated and would have a far better chance of healing favourably w of them is left undisturbed and the other is under the im observation of the practitioner, than when the wound uterus is torn up a second time, But the chief objection operation, and that which is most difficult to meet, is

ice. Any operation that is not seen, however painful it e, or however dangerous, is not looked upon with the error as when the surgeon takes his knife and proposes to o the abdomen. Although both operations-turning and omy-may be equally fatal, still the former will not share g like the opprobrium that attaches to the latter. The oner, therefore, requires no ordinary firmness to follow the that his judgment dictates; nor will this operation for d nterus be generally recognised until some bolder spirit es, by his success, the prejudices that flit around it. ries from ruptures of the uterus are sufficiently rare to my mode of treatment that has not been generally adopted. ts brought forward give strong suppport to that which is oposed, and reason seems to point it out as much more to the cases we have now under consideration than the on of forcing the hand through the rent into the abdomen, r to turn.

regard, then, to the mode of delivering the child, you ke the following rules:

When the head of the child is in the pelvic cavity, and ceps can be applied without difficulty, let it be employed. When the head is fixed in the cavity, or so tightly adapted pelvis that it must be moved back, in order to apply the this instrument should not be used. Perforation is then ary, and the operation should be performed with great care, a head may be displaced.

When the head is fixed in the brim of the pelvis, performay still be adopted, although there is a greater risk placing the head, because the perforator must be directed apwards than towards the sacrum. If it be tightly fixed, roffer sufficient resistance to enable you to make an g; but if otherwise, and the head be pushed back above divis, the child must be removed either by turning or tomy. The former operation is very objectionable; and, are—

When the child is in the cavity of the abdomen, forced either by the uterus or by the hand of the practitioner, the only operation that appears to give a reasonable chance of success is gastrotomy.

5. When the child still remains in the uterus, notwithstanding the laceration, it may be removed by turning, because the hand is not of necessity passed through the rent; but even here great caution is required, lest the uterus be further torn by any awkwardness in manipulation.

The shock of the accident must be guarded against when any operation for the delivery of the child is about to be undertaken; otherwise the patient may perish while being delivered. If the pulse be feeble, or hardly to be felt, or if she be in a state of syncope, no attempt should be made to remove the child until there is some evidence of returning strength. She should be given a full dose of opium with some stimulant, as ether, ammonia, or brandy, the temperature of the surface and extremities maintained, and the patient not moved from her position until the pulse is restored. As soon, however, as reaction takes place, the child should be at once removed; because so long as it remains in the abdomen it is the chief source of irritation, and of consequent depression of all the vital powers.

LACERATIONS OF THE OS UTERI have been very little noticed, although our impression is, that they are almost as frequent as lacerations of the perinæum. They are not called ruptures of the uterus, because the injury is not attended by the same fatal consequence as when the peritoneum is torn: the rent in the mouth of the womb heals with as little constitutional disturbance as that in the perinæum, and therefore does not attract attention-The frequency of this accident, however, may be estimated by the traces that are left behind in the cervix, when the uterus becomes afterwards the seat of disease. Having had occasion, we may say, constantly to examine the os and cervix uteri. both by touch and with the speculum, long after delivery, in consequence of symptoms of inflammation, we have found abundant evidence of previous mischief in the deep fissures of the cervix, accompanied by great induration and ulceration. If inquiry were made of the patient's labours, she was sure to give a florid account of their severity-"the child obliged to be taken away by instruments," etc. Such effects as these should be remembered, if we would form a just estimate of the consequence of difficult labours, and especially of the imprudent use of instruments.

Separation of the Cervix Uteri has sometimes taken place: the shole disc of the vaginal portion of the cervix has been detached, and expelled with the head. Mr. N. P. Scott, of Norwich. relates the first case of this kind (Med.-Chir. Trans., vol. xi.). The os uteri was rigid and contracted, it did not yield to the reclonged efforts of the uterus, and was at length torn off. A similar case occurred to Mr. Hugh Carmichael, of Dublin (Dublin Journal, vol. xci. p. 53-54). Dr. E. Kennedy met with two such cases in the Dublin Lying-in 'Hospital (Ibid p. 154). Dr. Lever also relates two cases—one of them of great practical interest. It occurred in the practice of Mr. Evans. Labour commenced on Tuesday morning at three o'clock, and continued to two o'clock on Thursday, nearly thirty-six hours, without producing any effect on the os uteri. Depletion, purgatives, local fomentations, anodynes, and tartar emetic, had been used without effect: the os was thinner, but merely admitted the tips I two fingers, and still felt like a hardened string: the cervix was dilated, thin, and greatly on the stretch: the pains had been for some time very frequent, vehement, and forcing. Dr. Lever "divided the whip-cord margin of the os uteri towards the posterior half of the sides of the pelvis, in the direction of each sero-iliac synchondrosis. The incisions were made during the contractions of the uterus; the patient made no complaint, in act they gave her no pain., The immediate result was a diminution of the edematous condition of the cervix, and the less of a small quantity of thin watery blood. The pains which had been so forcing did not at first entirely cease, but were much moderated; still, feeble as they had become, slight progress was made: there was a cessation for half an hour; they then recommenced: at four o'clock, the os uteri had dilated to the extent of two inches diameter, and at a quarter to five, a female child was expelled still-born, but was resuscitated on the application of the usual remedies" (Guy's Hospital Reports). The

patient, who had been sixty hours in active but fruite before this operation, was delivered in less than sixty after it was performed. This is a highly instructive car it points out the remedy for this extreme rigidity, an the propriety of the practice pointed out in a form (p. 247)-that of incising the cervix. Hitherto the thought himself fortunate if the death of the child er to remove it before any dangerous symptoms shewed t but you perceive that, by promptly relieving this condition of the cervix, the child may be saved, and t secured from any risk of so serious an accident a described. Besides, recollect that in using such a are, after all, only imitating Nature, who, in her own quently incises the cervix, and sometimes separates it you cannot go wrong in following her example; and when you meet with these very embarrassing cases, labour is prolonged, the os uteri undilatable, and the we feel justified in recommending you to incise the its relief. As a proof that this summary method of difficulty is not so dangerous as would at first sight a remarkable that five of the six cases above mentions recovered, and the sixth died of "puerperal arthritis, the result of the absorption of putrid matter, not only uteri, but the vagina and perinæum being in a state Had the operation to which we have alluded been t formed, even this woman might have been saved.

LACERATION OF THE VAGINA may occur without in uterus. Dr. Dogherty, Professor of Midwifery i College, Galway, relates one case of this kind which (Dublin Journ. of Med. Science, vol. xxvii. p. 326); D. and M'Clintock relate another that escaped (Report, p.

The cases we have quoted, taken collectively, bear great variety, both as to the causes and the charac lacerations of the parturient passages.

## LECTURE XXXII.

INVERSION OF THE UTERUS. PROLAPSE OF THE FUNIS.

PLURAL BIRTHS.

Inversion of the Uterus is a very serious accident of delivery, and one which, more than any other, has reflected odium on the practitioner; the most disgraceful blunders, and the most frightful results, have been the effects of ignorance of its nature. The uterus, which, if properly managed, would have contracted in the usual manner, has been inverted solely because the attendant did not know how it ought to contract, and, by making violent efforts to draw down the placenta, drew down the uterus along with it. It has been left inverted so long that it could not be reduced; it has been mistaken for the placenta, and absolutely torn away. In the black catalogue of fatalities from obstetric mismanagement, there are no cases so obviously chargeable to the incompetency of the accoucheur as those of inversion of the uterus. The nature of the accident should therefore be studied and understood.

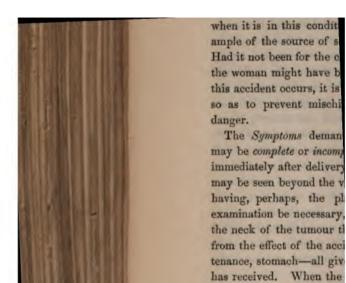
Causes. The causes of inversion of the uterus are most usually traceable to violence, although sometimes the accident happens spontaneously.

Pulling at the Funis improperly is, perhaps, the most frequent cause. The placenta being retained, an attempt is made to separit by pulling the cord: at first, perhaps, gently, by and bye with more force, and at length, "a long pull and a strong pull" brings down the placenta and fundus uteri completely beyond the vulva. One example will be sufficient to show you how it is done. "A patient, being averse to the presence of a medical man, insisted that she and the midwife 'could manage it' (that is, the delivery of the placenta,) before he came. Acting on this impression, the

the uterus is less obvious out by the funis, but the of the uterus, as to excit fibres; an invagination intestine, and the depress inversion is completed. Shortness of the Funi inversion, but this very funis so short as to preve from following it: eight of for this purpose, and it i length than this. In the pital, there has not bee 71,000 cases, and there m funis. Drs. Hardy and acute inversio uteri has accumulated experience of and Johnson, in this hosp of the occurrence of this delivered during their uni seventy-one thousand" (i Spontaneous Inversion o

membranes had ruptured at three in the afternoon, nearly eight hours before my visit, she felt convinced that her labour would speedily be terminated. As she walked across the room, I observed her abdomen unusually prominent, and suspected she might have twins; but in this I was mistaken. At my request, she placed herself on the bed, so that an examination per vaginam might be made, when I discovered the head already low down in the cavity of the pelvis, the os uteri receded beyond reach of the finger, and the labia and peringum soft and dilatable. As yet there had been no uterine contraction since I entered the room, but, just as she was getting off the bed, in order that it might be more comfortably prepared, a violent pain came on, and almost before I could apply my hand to the perinæum the child was expelled, and the placenta brought to the os externum by the continuance of the same pain. Having hastily tied and divided the funis, and removed the placenta (which was perfectly loose), I passed my finger to ascertain the condition of the os uteri, which I could feel high up, widely dilated, and embracing a soft clobular substance, which protruded through it and occupied the vagina. This I at first imagined was the bag of membranes belonging to the other fœtus I had suspected to be there. To satisfy myself, I placed my other hand on the abdomen, but, to my surprise, could feel nothing like the uterus there, although I made deep pressure for it" (Lancet, vol. ii. p. 406). Mr. Clarkson found that the uterus was partially inverted, and used the proper means to restore it to its place.

This case illustrates the cause of this spontaneous inversion. The uterine fibres had evidently lost their tone, being weakened by frequent pregnancies. The abdomen gave the uterus no support; the fundus projected prominently over the pelvis. The dilatation of the uterus, and the advance of the head into the pelvic cavity, caused no pain; but when the patient changed her position, so as to bring the pressure of the child more in the axis of the pelvis, a violent expulsive pain completed the delivery. The uterus was suddenly emptied of its contents, the fundus uter was forced down within its cavity by the single expulsive effort, and the inversion produced. When the uterus is in this



are more progressive. S plains of a renewal of her and are mistaken for after are accompanied by such imagines that another chi ing, and great anxiety. If the abdomen be examined above subes, the uterus cannot be traced. The surface of the mr is generally covered with blood, but hemorrhage may ly slight, or very profuse: there is a great variety in this ct. Cases have occurred without hæmorrhage, and where the nta has been peeled off the surface without any loss of blood. her instances there has been profuse hæmorrhage. Dr. Lever a case of fatal hæmorrhage which followed the separation • placenta from an inverted uterus. Mr. Newnham has sheerved hæmorrhage followed by immediate dissolution in cases. Dr. Radford, on the contrary, has seldom found as hæmorrhage, and has removed the placenta frequently safety. This contradictory experience might, perhaps, be sciled. If the uterus have lost its tonic contractility, and if too flaccid to retain its form under the force compressing it, perhage, perhaps profuse, will be a natural consequence of sondition. If, on the other hand, there be no uterine inertia, the fibres, through some violence, be made to assume an ted action, the fundus of the uterus being drawn down ally, and by its contractions forced further in a wrong sion, until the inversion is completed, - in such a case it is r that no hæmorrhage will take place, because the contracof the uterus in this inverted position is just as great as, if zenter than, in its natural situation, and therefore the effect me uterine vessels must be the same. In fact, if this view perect, the presence or absence of hæmorrhage would be rned by the same cause here as in a case where no inion has happened. In both instances it would depend upon wesence or absence of an efficient uterine contraction.

ingnosis. The uterus, when inverted immediately after very, cannot readily be mistaken for anything else: it is only a the immediate effects of the accident have passed away, and aterus has remained for some time in its new position, that a may be a difficulty in determining its nature. It may then asily mistaken for polypus: a large pyriform tumour, the neck hich is surrounded by the os uteri, bleeding readily, and not seible, are characters common to both. The uterus, however,

presents a rough surface, and it generally retains its irritability when this is absent, the diagnosis is still more difficult.

Dr. Gooch relates an interesting case, which will illustrate the difficulty of diagnosis.\*

The Treatment is obvious: the uterus should be immediately replaced before the contraction of the uterine tissue becomes permanent. Denman found it impossible to restore the uterus when four hours elapsed from the accident. This limit of time seems.

<sup>\*</sup> Mr. Borret, of Yarmouth, with whom, when this happened, Dr. Gove was residing as a pupil, was called to a lady in labour with her sixth child On his first examination, he found a large fleshy tumour within the vagin The anterior segment of the os uteri was easily felt, but the posterior wa occupied and covered by the attachment of the tumour. After the orific had dilated, and the membranes had burst, the head of the child not de scending, Mr. Borret introduced his hand, brought down the feet, an extracted the child. The placenta was expelled spontaneously. The patient now being delivered and easy, he left her at seven in the morning At three in the afternoon he found her in strong pains, as if there was another child; but, as the abdomen was flat, and the contracted uters could be distinctly felt in the abdomen, he was satisfied that there was no and gave her an opiate. At eight o'clock at night he found that the pain continued violent, with the sensation as of a substance coming away; an on examination, he discovered a soft round tumour pressing against the outer orifice. What could it be? He could have thought that it was the uterus inverted, but it was the same tumour which he had felt in the morn ing before the child was born: there was no hæmorrhage, the placenta ha been expelled spontaneously, and the uterus was distinct in the hypogastri region. He consulted his medical friends in town, and sent off to Norwic for Mr. Rigby. The pains continued with violent expulsive efforts all night and the next morning they found her with a languid pulse and pallid coun tenance; a large fleshy livid tumour had been forced out of the vagina, an every pain brought it more and more in sight: she continued to suffer an sink through the rest of the day. In the evening Mr. Rigby arrived, but she expired about half an hour before. As soon as he arrived he examined the tumour, and was convinced that it was the inverted nterus. On openin the uterus next morning, the uterus was found contracted; but its orific was dragged down as low as the external orifice by a tumour which gre from it by a thick stalk; it was attached to the posterior part of the onfice and, some way up the neck, was of a livid colour, and weighed three pound fifteen ounces (Gooch Diseases of Females, p. 281-82).

bowever, not without exceptions. Dr. Tyler Smith reported to the Royal Medical and Chirurgical Society (April 13, 1858), a case of complete inversion of the uterus of nearly twelve years' standing, which, by continuous pressure dilating the os uteri, which was very small and rigid," he succeeded in replacing. His mode of doing so was this: "The right hand was passed into the vagina night and morning, and the uterus squeezed and woulded for about ten minutes at a time. . . . In the interval between these manipulations, the vagina was distended, and firm pressure exerted upwards by a large air-pessary. These means gradually dilated the os uteri to such an extent as to allow a partial return of the uterus, and on the eighth day from the commencement complete re-inversion took place."

We cannot find any case similar to this of reduction of a sterns after a lengthened period, but, standing alone, it will justify mutious attempts at replacement; these attempts, however, must be guarded—not violent; patient and persevering—not forcible. We have met with cases of inflammation of the inverted womb anding in death, caused by violent attempts to replace it.

If the inversion be irreducible, its treatment belongs to a difment subject from that which we are at present discussing.

The mode of replacing an inverted uterus is somewhat similar to that of prolapsed uterus. The tumour is firmly compressed with both hands, and the centre of the fundus pushed upwards by the fingers forming a cone: when the reverted portion arrives within the pelvis, the difficulty of advancing it increases, because the uterus is so much folded on itself; but when the fundus passes this point, it flies back to its natural position, just like an Indiambber bottle. Much of your success will depend upon promplitude: the uterus should be returned quickly; but if there be much delay or violence, it may become impossible to do so. Recollect, therefore, the opposition which the perinæum may give: it is necessary to press it back strongly while attempting the reduction, otherwise you might fancy the inversion was irreducible.

When the placenta is attached to the uterus, it has become a disputed question whether it should be removed first or not.

semi-flaccid state, the pressure of the superincumbent par might readily cause a cup-shaped depression in the fundus wh that pressure is increased by strong contractions of the abdomin muscles. The same cause that, in a healthy uterus, would effe more perfectly its regular and uniform contraction, may produc in the atonic uterus, irregular contractions and inversion: hen it is possible that there are many cases of retained placenta fro irregular contraction of the uterus, of after-pains, and sometim of hæmorrhage, the result of very partial inversion of the uter when it is in this condition. This case also affords a good e ample of the source of some blunders that have been committee Had it not been for the caution and intelligence of Mr. Clarkso the woman might have been treated as having twins. Whenever this accident occurs, it is very important to recognise it at one so as to prevent mischief, because delay always increases the danger.

The Symptoms demand immediate attention. The inversion may be complete or incomplete. A complete inversion, happening immediately after delivery, can cause no difficulty. The uter may be seen beyond the vulva, sensitive, and covered with bloo having, perhaps, the placenta attached to it. If a vagin examination be necessary, the os uteri may be felt surroundin the neck of the tumour that is formed. The patient is prostra from the effect of the accident; and the pulse, respiration, cou tenance, stomach-all give evidence of the shock the constitution has received. When the inversion is incomplete, these sympton are more progressive. Soon after the delivery the patient con plains of a renewal of her labour-pains; at first they are slight and are mistaken for after-pains, but soon become so violent, at are accompanied by such a sensation of forcing, that the paties imagines that another child is coming into the world. She fortunate if her attendant do not fall into the same mistakeconfound the fundus of the uterus, as it is pressing into the vagina, with the head of the child, and proceed to assist the delivery. At length the fundus is forced beyond the vulva, at the inversion is immediately followed by the symptoms of nervo shock - rapid pulse, hurried respiration, coldness of surface vomiting, and great anxiety. If the abdomen be examined above the pubes, the uterus cannot be traced. The surface of the umour is generally covered with blood, but hæmorrhage may be only slight, or very profuse: there is a great variety in this respect. Cases have occurred without hæmorrhage, and where the placenta has been peeled off the surface without any loss of blood. in other instances there has been profuse hæmorrhage. Dr. Lever relates a case of fatal hemorrhage which followed the separation of the placenta from an inverted uterus. Mr. Newnham has also observed hæmorrhage followed by immediate dissolution in such cases. Dr. Radford, on the contrary, has seldom found erious hæmorrhage, and has removed the placenta frequently with safety. This contradictory experience might, perhaps, be reconciled. If the uterus have lost its tonic contractility, and if the too flaccid to retain its form under the force compressing it, homorrhage, perhaps profuse, will be a natural consequence of his condition. If, on the other hand, there be no uterine inertia, the fibres, through some violence, be made to assume an brerted action, the fundus of the uterus being drawn down partially, and by its contractions forced further in a wrong rection, until the inversion is completed, - in such a case it is thely that no hamorrhage will take place, because the contracof the uterus in this inverted position is just as great as, if greater than, in its natural situation, and therefore the effect the uterine vessels must be the same. In fact, if this view to correct, the presence or absence of hæmorrhage would be everned by the same cause here as in a case where no inwion has happened. In both instances it would depend upon be presence or absence of an efficient uterine contraction.

Diagnosis. The uterus, when inverted immediately after blivery, cannot readily be mistaken for anything else: it is only the immediate effects of the accident have passed away, and uterus has remained for some time in its new position, that are may be a difficulty in determining its nature. It may then usily mistaken for polypus: a large pyriform tumour, the neck hich is surrounded by the os uteri, bleeding readily, and not cible, are characters common to both. The uterus, however,

Prolapse of the Funis in the Second Stage of Labour is more within reach of treatment, because the head may sometimes be extracted by the forceps, the funis may be more easily replaced or the child delivered safely by turning, if the operation be promptly performed after the rupture of the membranes. In the majority of cases the pelvis is roomy, and will admit the forceps to be used without difficulty; there is no just reason, therefore, for withholding it when the life of the child is in such imminent danger; we might as well refuse our hand to a drowning man, and let him struggle out of danger the best way he could, as to leave a child to the natural efforts of the uterus under such circumstances. There are certain exceptions, however, when the pelvis is contracted irregularly, which would render the forceps a doubtful remedy. The head may become fixed in the brim of the pelvis, and yet the funis descend in the space afforded by the irregularity. In these instances the long forceps might certainly be used, but they very often fail in effecting the delivery: the only operation, therefore, to which recourse could be had in order to save the child, is turning, and even this operation is by no means certain in its effect, because the funis is exposed to the risk of pressure during the whole operation, unless, indeed, it be protected by the projecting promontory of the sacrum.

In general, however, there is sufficient space in the pelvis to turn the child if necessary; and it appears to us that we are fully justified in giving the child this chance for its life, if we cannot otherwise save it. The practice of delivering the child either by the forceps or by turning is adopted more decidedly on the Continent than here, and with much greater success so far as the child is concerned. You may observe the results of these cases in the two great midwifery establishments of Dublin and Paris:—

	D	UBI	IN	LYI	NG-	IN I	iosi	PITA	L.	111		
Barke ims ins and a	Total	ed.	Delivered Living by						Children.			
	Cases.	Funis prolapsed.	Forceps.		Turning.		Funis replaced.		Natural.		Alive.	Dead
	10,387 16,414 6,634	66 97 8 7	not stated.		not stated.		not stated.		not stated. 18		17 24 12	49 73 25
	33,435	200		2		-		10		4	53	147
		1	IAT	ERN	HTÉ	, P.	ARIS	3.				
	Total Cases.	ises.	Delivered by									
arity.			Forceps.		Turning. Funis			Natural.		Children.		
		Funts 1	Alive.	Dead.	Alive.	Dead.	Alive.	Dead.	Alive.	Dead.	Alive.	Dead.
elle	20,517 22,243	38 24	13	3	25 6	6 2	10	-	-	5	29 16	9 8
	42,760	52	16	4	31	8	10		5	5	45	17

the Maternité, the proportionate frequency of these cases th less than in the Dublin Lying-in Hospital. In the latter were 1 in 112; in the former, about 1 in 700 cases. In aris Hospital the child was generally delivered either by the s or turning, which was not the practice in Dublin, and the mortality seems consequently to have been greatly dimin-In order, however, to form a just estimate of the success s practice, it would be desirable to know the results to the which are not given in the French reports. In the n Hospital there were no maternal deaths,-" none of the rs sustained any injury in the delivery" (Collins, p. 346.) re not told whether such was the case in the Maternité; is a most important desideratum, because the risk to the r is the objection raised against turning the child. Drs. and M'Clintock observe, that "in the hospital the operation ning was not had recourse to on such grounds (prolapsed

funis), as Dr. Johnson considers that the probability of saving the child by this measure is not sufficiently great to justify is adoption, or to counterbalance the risk to which it exposes the mother." In the Dublin Hospital, also, a number of cases were admitted, having the funis already prolapsed and pulseless, and therefore beyond the reach of any treatment. Making ever just allowance for these sources of error, we are very much disposed to think that we are too timid in refusing the Frence practice. There is generally quite sufficient space in the pelvito perform any operation you please with facility, and the time to interfere in a case of this kind is immediately after the membranes are ruptured—the most favourable moment for turning the child. We should, therefore, not hesitate to recommend you deliver the child immediately when the funis descends, if you find it impossible to replace it.

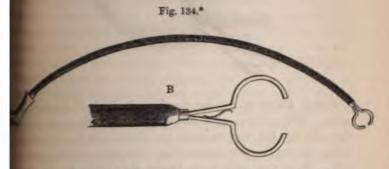
Reposition of the Funis is obviously a most desirable object ! gain; and consequently several means have been proposed accomplish it. The first and simplest is to attempt to replace the cord by the fingers. Drs. Hardy and M'Clintock has adopted it with success, and prefer it to the different contr vances which have been proposed. The plan they have been in the habit of pursuing is as follows:-" The patient is place as much as possible across the bed, upon the side opposite to the on which the procidentia exists: thus, if it be toward the right sacro-iliac junction (as happened in nearly all the cases we have seen of this complication), she reclines on her left side, in the usual obstetric position; but if the descent have taken place the left sacro-iliac symphysis, she is made to lie on her right sid This is the first point to be attended to: the next is the hand In preferring one hand to the other, our object is to use the whose dorsal surface can most conveniently be kept near the sacrum; for much greater facility will be thereby obtained accommodating the fingers to the concavity and direction of the pelvis. If, therefore, the woman be lying on her left side, left hand is used; if on the opposite, the right hand. The preliminaries being arranged, the index and middle fingers 11 introduced into the vagina during an interval between the pain

the funis is drawn gently forward, in order, if possible, to - to a shallow part of the pelvis. We then endeavour to p, beginning with the most dependent portion, and afterelevating the remainder by little and little, until the whole pushed up out of reach of the fingers. In this way accomplished, although the os was not dilated to more than half its extent. We have In different cases, where the pulsation was vigorous in the that although we could not elevate it fully above the head, by keeping the fingers steadily in their position for a The impetus of solved in the umbilical arteries, together with the lubricity of \_\_\_\_\_\_ concerned, may perhaps account for this occurrence." Puerperal Diseases, p. 342-43.)

Late Sir R. Croft went a step further, and proposed to the cord over the limb of the child, which he twice suc-\_\_\_\_ and in doing; but we fully agree with Burns's remark on this \_\_\_\_\_ If the hand is to be introduced so far, it is better at to turn the child." (Principles of Midwifery, p. 433). Dr. senzie proposed to enclose the prolapsed portion of the funis bag, and thus to return it. We have known this method to more, but it is very awkward and inconvenient, and has more ently failed. Osiander suggested a plan that has answered expectations, and we have twice tried it with success: that press up the funis with the fingers between the pains, and wit with a sponge placed between the head and the pelvis. the next pain comes on, an effort must be made to prevent sponge from being forced from the vagina: if you succeed, funis escapes as the head passes the sponge, compressing it enst the pelvis. Several attempts have been made to connect cord to a long gum-elastic catheter, which may be pushed up sond the point of pressure, carrying the cord along with it. Sessor Michaelis, of Kiel, adopts the following method. A ing gum elastic catheter of the largest size is selected, through sch a soft ligature of tape or worsted is passed, having the of the ligature coming out at the eyelet-hole of the upper cemity of the catheter. The catheter is introduced into the

are drawn, so that the loop is upper orifice of the catheter cord, being thus secured, is p head. The ligature is detach drawn. M. Chailly has propo ing out the same principle, wh le-Duc) has often practised wit ceeding is as follows. A thre both ends are brought beyond behind the stilette of a very brought through the eyelet-ho replaced and pushed to the end secured. Mr. Stevens has cor that is very ingenious. The s the catheter, so that about an beyond the catheter. The ex and springs open as soon as it faces of the divided parts ar passed up to the funis, and a : the cord is placed between the c stilette is drawn within the ca the opposite extremity; the

the consequence of its lubricity. A modification of this sequent has occurred to us, which, we think, might obviate incurrence, and answer the purpose. The divided extreme of the stilette are curved, so as to form segments of small max. When the stilette is closed, these segments meet and maxing, having an open space between them: when it is seed, which may be done by pushing the stilette forwards to fill extent, the segments separate sufficiently apart to enable at remove the instrument safely. The manner of using it is to the instrument up to the funis, having the stilette open: let cord be placed between the segments, which may then be sed, by drawing back the stilette. In this manner, the funis is, it were, passed through a ring, which is pushed above the sed. The circles should be made sufficiently small to hold the this closely, but not so tightly as to interrupt the circulation.



If it were possible by any of these means to effect the reposition of the funis, a great object would be gained: we should be mabled in many instances to save a life that otherwise would be distroyed, and this without any apprehension on our mind of larger from the operation. But if our hopes in this respect be not realised—if we fail in replacing the cord—we would again repeat that we are bound to interfere: to deliver with the forceps

Fig. 134. A. Catheter, having the ring closed. B. Extremity of beter, ring opened by spring when pushed forward.

if the head be at all within reach of to turn the child.

Fig. 135.\*



Portion Brates are the last complice spena. Women have been delivered instruments but these instances are a county torsuse they are extraordinary the. When such accidents do happen as to present no illifetily at birth.

These cours in the proportion varying to true in a humined and eight cases wereast to the may be a natural, the cast taken. They selded attain the same challent although there are some a strong healthy women. Neither do to the women, one may be larger than

<sup>\*</sup> Fig. 173. Instrument applied for t

here the development of one is completely arrested, e other proceeds to the full size. Thus, at the same child fully grown to the ninth month may be accompanied ond only developed to the fifth or seventh month. id ovum may be altogether destroyed. We met with one his kind in the Dublin Lying-in-Hospital; the skeleton s at the fifth month was found among the membranes enta, expelled after the birth of a child fully grown. It as if the process of softening of the tissues, which is putrescency," had destroyed every portion of the second t the skeleton. Drs. Hardy and M'Clintock mention a twins in which the first child was strong and healthy; nd much smaller, with the skin of copper colour, and ably advanced towards putrefaction: the cuticle everyeling off. Cruveilhier, in his Illustrations of Pathological , gives a plate of twins with united placentæ, one healthy, corresponding child fully grown; the other morbid, and th arrested at four and a half months. My friend, Mr. eported a case of triplets in the Medical Gazette, in which, similar cause, one child had grown considerably larger other two. These instances prove the independent life child; one may perish without affecting the other. When, e, we meet with a difference in the size of the children, necessary to suppose them instances of superfectation. Symptoms of Twins are generally obscure before delivery. of the uterus is certainly larger; but there are many of error in forming an estimate of it. For instance, an of the ordinary size may be thrown very much forward, abdomen may project much more than usual; or, on the and, a very large uterus containing twins may not project parietes of the abdomen be strong, and the pelvis large. the liquor amnii is in excess, the uterus is very much ed, but may contain only one small child. The shape of us is generally, although not always, altered; it is wider, regular, and sometimes the outline of two portions may be by an imperfect line of demarcation traversing the abdobliquely; but the same irregularity may be caused by a



The symptoms, after deliver great size of the uterus, and 1 uteri, are sufficient proofs.

The Treatment of these case When you have ascertained t womb, keep your mind to y patient more than the appre pains of labour twice over, easily depressed than others, sometimes produced by this stitution. The too great diste tone, and if so, hæmorrhage 1 child; the danger is greatly inmore extensive supply of b greatest caution should there bandage carefully applied rou: useful, because it supports th delivery of the first child, its ; placental side; instances are m between the two portions larg cient to cause profuse hæmorrh

membranes of the second child

done; every moment of delay exposes the patient to risk

hen the second child is delivered, the greatest attention d be given to insure a proper contraction of the uterus, in that the delivery of the placenta may be safely effected. it has been expelled, the bandage and compress should be ally applied, and, as an additional security, a dose of ergot opium may be given; if, however, the fundus uteri feel well contracted, and no external hæmorrhage be observed, medicine may be dispensed with.

e patient should be carefully watched after delivery, because cases are far more liable to inflammations, fevers, etc., than s; more caution is therefore necessary to insure a favourable ery.

#### LECTURE XXXIII.

### ANÆSTHESIA.

the send is covered within the last few years, that certain volabstances possess this peculiar property; and hence anæshas been introduced into the practice both of surgery and of fery, for the purpose of relieving the extreme sufferings to patients are exposed in surgical operations and in the sof labour. The agents chiefly used, are sulphuric æther hiloroform, which are found to exert a most powerful nee over the nerves; they can destroy, for the time, their of communicating sensations or exciting motions; the nee of the cerebrum may be removed as in sleep; the action wital organs that depends on the integrity of the organic, may be disturbed; and even the last traces of nerve-force in the post mortem irritability of the muscles may be stely obliterated.

Agents, therefore, possessing such enormous powers, and at the same time conferring such benefits on suffering humanity, has necessarily become subjects of much controversy. The advocation of chloroform, delighted with its effect in surgical operation and in assuaging the severities of labour, point out with enther siasm its advantages. Its opponents, on the other hand, low upon an agent of such power with much apprehension, at condemn in no measured terms the boldness of those who ventuate employ it.

We shall not now occupy your attention with these contriversies. It is sufficient to say, that anæsthesia is now general used in midwifery as well as in surgery, and the only controven that remains for discussion is whether chloroform or sulphur æther is best for the purpose.

It will be sufficient for our purpose to point out to you whichloroform is, what are its obstetric uses, and what cautions a necessary in its administration.

PROPERTIES OF CHLOROFORM. Chloroform is one of many sulstances that possess similar properties, only differing in degree. Hydrogen and carbon form the base, which may exist alone, the united to a third element, and thus form a ternary compound They all possess auæsthetic properties; they influence the nerver system in a similar manner, but differ essentially in the degree and rapidity with which their effects are produced. Alcoholous sulphuric æther, chloroform, hydrocyanic acid, are examples

*Aniesthetics.	Carbon.	Hydrogen.	Chlorine.	Oxygen.	Nitrogen.	Specific Gravity.	Bolling Point.
Benzin, or Benzole	2	1	-	12		0.8850	1764
Chloroform	2	1	3	-	-	1-4800	143*
Dutch liquid	2	2	2	-	-	3.4484	1800
Sulphuric æther	4	5	-	1	-	0-7154	96
Alcohol	4	6	-	2	-	0.7938	1739
Hydrocyanic acid	2	1	-	-	1	0.7058	794
Chloride of carbon	4	4	-	1 = 2	-	1.5520	2430
Chloric æther	A m	xture	of chlo	roforn	and a	lcohol.	

ternary compounds which have anæsthetic properties, but

The ansesthesia of alcohol is slow in appearing; nor is it until a potations are prolonged and deep, that such an effect manistiself. Nevertheless, cases have occurred in which an inortime draught of brandy has been followed by instant loss of pervous power, and the drunkard has fallen down perfectly insible in a state of anæsthesia.

Selphuric ather acts more promptly, and is preceded by a stage fexcitation not so prolonged, nor so boisterous, but still not similar to that of alcohol.

(Moreform is yet more rapid in annulling sensation, and its

Bydrocyanic acid acts with a rapidity that renders it a poison that fatal power; there is no intervening stage, but sensation, consciousness — all nervous energy — are instantly toyed by it.

The third element of the compound seems not to be essential to the trather to regulate the intensity of, the anæsthetic effect. The same hydrocarbon base combined with oxygen (alcohol, thuric æther) has less power than when united with chlorine thereform); and again, the combination with nitrogen (hydroguic acid) forms an anæsthetic of the highest intensity. So to of the compounds with oxygen. Alcohol, which contains to relumes, has less power than sulphuric æther, having only of oxygen. Anæsthesia seems to be at its maximum when the hydrocarbon is combined with nitrogen, and at a minimum the oxygen.

It has also been proved that, in the hydrocarbon base, hydromais not the essential element, because chloride of carbon and chlorine) and benzole (carbon and hydrogen) produce smlar effects; and hence the inference is, that carbon is the sethetic element, which remains dormant until called into stivity by the gases with which it may combine.

IE ACTION OF CHLOROFORM ON THE ANIMAL TISSUES has I the subject of close observation. Anæsthetics differ in Reir mode of action. Alcohol acts with most power through

the stomach; less by inhalation; least, if at all, by the Chloroform acts chiefly by inhalation, less through the stom and least by the skin: its action being only partial, and lin to the surface to which it is applied. Hydrocyanic acid con its influence by all these channels; and, if pure, will destroy when dropped on the skin as rapidly as when received into stomach or inhaled.

When the vapour of chloroform is received into the lungis quickly expanded over all the air-cells; these are surrour on every side by the ultimate capillary ramifications of pulmonary arteries and veins, and also by the fine fibri expansions of the pneumo-gastric nerves; thus its influence to be conveyed to the nervous centres, either directly through the nerves, or indirectly through the blood; but the former belt to a division of the nervous system not susceptible to its act unless in large doses, so large as to become dangerous. Blood is the channel, therefore, through which it exhibits phenomena; by this means it is conveyed with great rapid to every portion of the body, and hence its manner of combin with the blood becomes a question of importance.

Action on the Blood. Chloroform is not very soluble in blood-much less so than alcohol-and consequently a la proportion of free chloroform travels through the circulat This is supposed to exert a strong affinity for oxygen; not suff ent, however, to absorb it and form new compounds, yet enoug prevent the usual affinities from taking place. Carbonic acid therefore, not formed in the same proportion; and, carbon not be sufficiently removed from the tissues, the anæsthetic elem remains to exhibit its influence. Several facts seemed to pr the relation between anæsthesia and the expiration of carbo acid. Dr. Snow has shewn, by numerous experiments, that quantity of carbonic acid evolved from the lungs is diminisl under the influence of æther and chloroform. Dr. Prout demonstrated the same fact in drunkards; and again, it is fou that extreme cold reduces the proportion of carbonic expired, and becomes an anæsthetic. It acts precisely as ch roform. There is the same loss of sensation (numbness)

the pain, followed by drowsiness; the same inability to the voluntary motions, and ultimately complete sopor. The we infer, that anæsthetic force is in inverse proportion to matity of carbonic acid expired.

his disturbance of the respiratory function necessarily that the colour of the blood; but the degree and manner in such changes are effected must depend, in a great degree, a socidental causes, as well as upon the power of the athetic. Carbonic oxyde is one of the most powerful of eagents; and Mr. Nunneley observed in animals poisoned by that both venous and arterial bloods were bright florid." Show remarks, that "when the blood which flows from the stand veins can be separately examined, whilst the patient all under the influence of the narcotic (chloroform), it is seen the arterial blood is somewhat less florid, and the venous dark, than under ordinary circumstances." Again, it has found in animals slowly put to death by chloroform, for three, after several experiments, that the blood in the arteries at dark as in the veins.

this probable that, in the first case, carbonic oxyde perfectly irralised the oxygen, which passed freely through both sides the circulation, and rendered the blood equally florid. In the end, chloroform did so to a certain extent, but only partially; as a certain proportion of free oxygen entered the veins, and an equal quantity of carbonised blood passed through the manner unchanged to the arteries; and lastly, in the third case, which there was sufficient time for the oxygen to be otherwise expessed of, all the blood became carbonised by carbon which hald not be removed. This, however, remains a question of the partial partial properties.

The large number of experiments (three hundred and sixtyfree) performed by Mr. Nunneley on the lower animals, render remarks of the highest authority. He does not think that d is changed, or, as it is said, "poisoned." "It does not lose power of coagulating; nor is that which is taken from an animal in so complete a state of anæsthesia as to be presently fatal, or even immediately after death has been occasioned, when examined under the microscope, seen to be much, if at all altered in its character; consequently, neither the fibrine nor the globules can be much changed; and unless the anæsthesia be very profound, or prolonged, the blood does not vary much in its colour. That which flows from a wound during an operation as bright as usual." (Trans. Prov. Med. and Surg. Association, vol. xvi. p. 359.)

The Action of Chloroform on the Nerves, and its manner of causing anæsthesia, is best observed by the effect of small does of the vapour gradually increased. The blood conveys the vapour to the heart: the heart transmits it to every nerve in the body. But these are not all equally under its influence. Of the three divisions of the nervous system, the cerebro-spinal is the first affected; then the reflex; and lastly, the ganglionic nerves.

The first communicates sensation, motive power, volition reflection. A small dose of chloroform will annul sensation without disturbing the power of motion or consciousness. As example will explain this. A lady suffered intense pain from abscess of the breast, which was on the point of bursting. She could not bear to have it touched ever so lightly. We gave he an inhaler containing chloroform; she held it to her mouth and inspired the vapour two or three times. We could then touch and examine the breast without difficulty. Her face was directed from us while breathing chloroform, and while she was thus occupied. we plunged a lancet into the abscess. She did not feel the lest pain, and was delighted to find the object of her dread so easily removed. If the dose be increased, the power of motion is controlled, the hand drops, the patient cannot move herself; volition and consciousness begin to be affected; an imperfect sleep superveres, the patient remaining in a kind of doze, yet answering a question if asked distinctly; she will tell you that she hears everything that is said, but this is evidently not the case.

As the cerebro-spinal system is becoming more completely in-

fuenced by chloroform, the next—the reflex division—becomes engaged. This presides over all the movements termed sympathies, were the passions or emotions, and over the whole respiratory apparatus. The excitor nerves are first affected—the irritability of the eye-lids, of the nostrils, of the fauces, and lastly, of the gottis, is controlled; the motors then lose their power; the register is drawn upwards; the respiration becomes stertorous; the action of the thoracic muscles is slower, less perfect; the inspirations are incomplete, and a form of asphyxia takes place which may be fatal. Hence the importance of observing the influence of this agent on the respiratory nerves. Fortunately this loss of power becomes evident from the stertor which it causes; and although this may occur as safely as in natural deep, still it must be looked upon as a beacon to indicate tanger.

Thus far chloroform may be safely used; but if we pass one tap beyond this, and increase the quantity of vapour, or, what amounts to the same thing, if we do not carefully guard against its too great accumulation, danger is instantly present. The repiratory tract is the last portion of the reflex division of the pervous system which becomes affected: stertor is the earliest stidence; the thoracic muscles then lose their tone; the inspirations are less perfect and at longer intervals; the chief muscular action is carried on by the diaphragm. At length this also ceases, and death takes place.

It is important to contrast this form of asphyxia with that more commonly observed in instances of drowning, strangulation, spasm of the glottis, etc. The latter is caused by the absence of oxygen; the irritability of the respiratory nerves and the activity of the muscles under their control remaining unimpaired. The former trises from a deficiency of carbonic acid; oxygen is present, but the thorax cannot expand for its admission. In one case, the most violent efforts at inspiration are made, which gradually subside, as the blood becomes more perfectly carbonised and death takes place. In the other, these efforts are feeble ab initio, and death occurs without a struggle. In both instances, the lungs present the same post mortem appearances. Death from intense

cold will illustrate one form of asphyxia; death from croup, tother.

The quantity of the vapour that is sufficient to act upon a reflex nerves, may also influence the emotions. Sensation reflection, volition have disappeared; the patient is in a kind dream, which manifests itself by incoherency, inarticulate mutterings, and sometimes by more violent exclamations. The impressions produced by much suffering are occasionally exaggeration this dream.

We were once summoned to attend a lady in her confinement who had suffered very severely from her pains before we sa her. Chloroform was administered in small doses, but app rently with little effect: the dose was increased; she rambled little, and, when the pain came on, shouted out much more loud than before she was given chloroform. We were, certain rather puzzled, but determined to persevere. She always sle in the intervals: the respirations and pulse were careful watched; and the moment stertor was heard, the vapour w discontinued. A living child soon entered the world, and to part in exclamations that continued even after it was born. S soon, however, became quiet; but when we were pressing t uterus moderately to expel the placenta, her vociferations we renewed. They soon ceased; she was left undisturbed, and some time asleep. When she awoke, we were surprised to fi that she did not know when the child was born; she was n aware that she had been crying out. She said she must ha been dreaming; and such, in truth, is the only explanation can offer for this case, so remarkable an exception to the gener rule.

The intimate relation between the reflex and the ganglion nerves which chiefly supply the uterus, renders their influen on its action in labour an interesting object of observation. Whose that similar organs—the stomach, the bladder, the rectumare all largely supplied by the ganglionic and also by the reflection nerves; each have distinct duties to fulfil, but yet are in the mointimate relation with each other. Food or any other irritant excitate motions of the stomach through the excito-motor nerves:

ontinued action and digestion are carried on by the ganglionic ntem. So also urine excites the bladder, fæces the rectum; at the expulsive efforts are ganglionic. It has been noticed ing ago by Dr. John Power, that the expulsive action of the regus is the result of irritation reflected from the cervix when arranded to its full extent. Dr. Marshall Hall's valuable disweries have since been made known; and Dr. Tyler Smith has splied them to shew that the uterus is also under the control of reflex system of nerves. Hence it is necessary to determine far chloroform, by controlling the activity of these excitothe action of the uterus. It seems to have this wer to a certain limited extent. The periodic expulsive efforts the uterus will continue, although this reflex force is destroyed; minertia, no loss of tone is caused in the uterus, but its action be deranged or suspended. If such, however, should upen, it is only temporary; the uterus still observes its law of modic action; its contractions will return, and revive the energy the reflex nerves. Cases have occurred over and over again, which the patient was under the full influence of chloroform, the action of the uterus has in no way been altered. A markable case occurred in our own practice, which will illus-

We were summoned to a case in which the arm presented: the term had been some time discharged, and we were obliged to turn child. The patient was brought under the full influence of discororm; and while she was in this profound sopor, the operation was proceeded with. The pains returned regularly; and, in a interval between them, we endeavoured to pass the hand into a womb. We never experienced so much difficulty, in consercace of the strong contraction of its fibres about the child. Charoform did not relax them in the least degree; and, so far as a operation was concerned, gave no assistance whatever. The paint, however, was saved from the intolerable suffering which had this operation, and her recovery was greatly promoted by a teams. In other instances, we found turning greatly facilities, not by overcoming the contractions of the uterus, which a sufficiently yielding, but by relaxing the passages.

The third division of the nervous system, the ganglionic, last to yield to the influence of anæsthetics. Chloroform overcome the cerebro-spinal centre of sensation, motion, we and reflection; it may paralyse the excito-motor spinal disturb or even exalt the emotions, and yet scarcely touc ganglionic system.

This is a most valuable fact in relation to its obstetric because one of the objections, levelled with the most force at the administration of chloroform in labour, is the assumed of of paralysing the uterus—an objection the more specious, be the action of the uterus may be for a time suspended und influence. The difficulty of paralysing the uterus may be learned from the following experiment, related by Dr. Smith.

"A guinea-pig was nearly killed with chloroform, and a s was at once passed through the whole spinal marrow fro cauda to the cranium; but no spinal movement of any kind place." Chloroform had obliterated excito-motor irrital "The spinal marrow was broken down entirely. Still the periodic of the heart, intestines, and uterus, had not ceased. heart and intestines both contracted and dilated, as havi receive and transmit onwards their contents. The uterus shortened itself, as in an effort to expel its contents throug vagina. The uterus and intestines continued to act, moreover the beat of the heart had ceased. Thus, there is appared definite order of dying in the different organs under the cof the ganglionic system.

"In the human subject, the uterus evidently contracts so deliver its contents after both heart and intestines have ceal act; it is the ultima moriens of the ganglionic system, just respiratory organs are of the spinal system" (London Jour Medicine, Dec., 1849, p. 1109).

Chloroform may, however, stop the action of the he directly applied to it. This has been shown by experi on the lower animals. We have narcotised a kitten with a form. The heart was exposed, still palpitating; some chlor was dropped upon it; the action ceased, but was quickly re

when the chloroform evaporated; this was repeated several times-This fact has an important relation to the mode of its administration. When a concentrated dose of pure chloroform is inhaled, "the poison," as Dr. Sibson observes, "penetrates to the heart from the lungs in a single pulsation; and, at the beginning of the next systole, the blood is sent through the coronary artery to the whole muscular tissue of the heart. The blood passing into the coronary artery is less diluted, is more strongly impregnated with chloroform, than the blood in any other part of the system except the lungs." The direct effect of chloroform on the heart is also shewn by the experiments of M. Gosselin. In one experiment, he injected two grammes of chloroform into the external jugular vein of a middle-sized dog. The animal died in less than a minute: an examination was made immediately after death, and the heart was found voluminous and distended. In another, he injected three grammes: the animal appeared at first to suffer a little, then stretched out its paws without any convulsive movements, let its head drop, and died. The whole occupied less than a minute. (Archives Générales de Médecine, tome xviii, Dec., 1848.) These facts may explain the cause of death in the majority, if not in all the instances that have been reported; the symptoms seem identical.

The patient generally struggles against inhalation; then, in about two minutes, and often in much less time, a sudden pallor is observed with or without convulsion; the pulse is lost, and death takes place. After death, the lungs have been found congested, just as in M. Gosselin's experiments; hence the assumption that asphyxia is the cause, but there was not a single symptom of asphyxia in the sense that the term is generally employed. The cause of death seems to be the direct action of chloroform on the fibres of the heart, perhaps weakened by disease. In order to produce such an effect the dose must be concentrated, which would necessarily cause a spasm of the glottis, and feeling of suffocation, which prevents the patient from inhaling.

The heart has been found filled with fluid, or semi-coagulated blood, which is just what might be expected. Every dissecting-toom student knows, to his great inconvenience, that all the large

To this be drawn the blood, it be about the blood, it be about the blood to be about the blood the blood to be about the blood t

ine of dilatelling one destriction of dilatelling. (See the late N Gareta, vol. alvei, p. 713).

Death from Chirophra see

in a sufficiently diluted to the lungs and there would paralyse it. The immediation, and be overcome, and the inhalation outcomes the spasm, and end in order to avoid such a risk, more gradually, and in a greation be better observed, and in linger, which abould never a stion; but, inasmuch as the manglionic, all the signs a bility, startor, etc., will prese

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but this objection course but this objection course sometimes followers in the before the intended common and, when the patients of the course is a dispression of the course of the cou

members can occur.

This between, is a digress

meed never be given to such an extent in the practice of midwifery; and, as we shall presently prove, may be administered without the slightest risk or danger.

Deaths occurring several hours, or some days, after the inhalation, are obviously the result of other causes. It is impossible for chloroform to produce so distant an effect. It does not combine with nor alter the blood; it evaporates from it most rapidly; and therefore to suppose that it can cause death long after it has disappeared from the system, seems to be, to say the least of it, rather incomprehensible.

Having thus briefly explained the nature and anæsthetic properties of chloroform, we are prepared to consider its obstetric use.

## LECTURE XXXIV.

### ANESTHESIA (continued.)

The Obstetric Use of Chloroform will be best understood by considering its influence as progressive—one of degrees or stages. The first stage is that in which consciousness is retained, sensation is diminished or lost, motive power impaired. The second is the stage of transition, the dream before sleep or before waking; it may be a stage of stimulation or excitement, of rambling or incoherency. The third stage is that of profound sopor, the patient is quite unconscious, incapable of motion, perhaps in a stertorous sleep.

The first degree is generally sufficient in ordinary cases of abour.

The second is but transitory, and it is always desirable to avoid its continuance. This may be done either by withdrawing the vapour altogether, which restores consciousness, or increasing the dose, by which means the vapour attains—

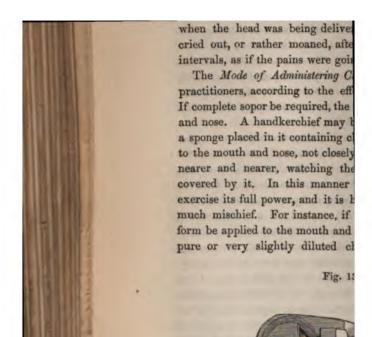
The third degree, in which sopor is induced. In obstetric practice it is never necessary that sopor should be so profound as

contractions of the uterus, but perfectly at rest; there is no lin after the pain has ceased; she should not, she remains at least return is again relieved by removed. Thus chloroform malong time without any other efferains.

If the dose be increased, or if a repeated as to cause an accumulate of a tingling sensation through the time a towel or sheet, the are She may speak of unusual sense though the pulse is perfectly transported to dream. At this point some are others are delighted with their will exaggerate their pains, and a loudly than before chloroform was they subside, merge into incoher removed, so that its effects pass of the pain which caused her exproportion of the control of t

ll less to perform an operation: the mind is not sufficiently aster of itself, and ideas may be excited which it is desirable avoid. This is not necessarily the case; on the contrary, we lieve it very seldom happens; but such cases have been related, when they do occur, it must be at this stage that such cts are observed. Operations cannot be performed, because woman becomes restless and unmanageable. A little more reform is necessary, and then sopor succeeds; she feels no , and is quite unconscious of anything that is done. At degree the eye-lids may be touched without winking-the ils are drawn upwards, there may be stertor, and if so, roform should be withdrawn. This state may be continued safety during any ordinary operation, and is extremely inl if it should be severe, as in some cases of turning and bration. A forceps operation may also require this extent næsthesia, but not necessarily so.

n the second degree, when the reflex system begins to manifest nfluence, it has been stated that occasionally the exclamations he patient are rather exaggerated than controlled; so also, n profound sopor is induced, it sometimes happens that she s out, as if suffering from pain, and yet, when consciousness arns, is not aware that she did so; she has no recollection of a: she will tell you she had none. We were once called to ase of difficult labour in which this occurred. It was the child, and the woman had suffered very severely for twentyr hours. The head was arrested in the pelvis, and it was essary to extract it with the forceps. Chloroform was adminired to its full extent; the woman was in a profound, but not storous, sleep. She lay on her side, perfectly unconscious anything that was done. She did not notice the first efforts extraction; when suddenly, as the forceps was pulled, she laimed: "Oh! my back." She did this two or three times; t, as the child was being delivere l, she said nothing, and seemed eep. She remained thus for about half-an-hour, during which ie the placenta was separated, and the bed settled. When she oke, she was very much astonished to find her troubles over. e did not know when the child was born, said she suffered no



, and a sense of suffocation; the patient resists; but if her ition be overcome, the sponge kept in place, and the vapour aspired, she becomes at once powerless; the glottis is re-, and if the vapour is carried in any quantity to the heart, may take place. This could not occur, if the inhalations slower-more gradual. Inhalers are also used, which are d to the mouth and nose, and are so contrived as to admit pheric air to enter freely with the vapour. We have been habit of using an inhaler that is applied only to the mouth, seems to me the safest mode of administering chloroform an be adopted, although not the best, if the full power of pour is required. Chloroform may be given either to lull ins without disturbing the consciousness of the patient, or nove all pain by inducing sleep. The first mode is applicto ordinary cases of labour; the second is used in some obstetric operations. The inhaler to which we allude iplishes the first object perfectly, because the vapour which the lungs is so much diluted with atmospheric air that its is greatly weakened, nor, until the inhalation has been med for some time, does it cause anything like sopor. This e understood, if we reflect that the nostrils are the channels gh which respiration is chiefly carried on. Respiration may perfectly and easily while the mouth is shut. If, then, apour be inspired by the mouth, double the quantity of air through the nostrils, precedes its entrance into the lungs, hields the cells from its too powerful influence: hence a very volume of chloroform, just sufficient to lull sensation, is ed into the circulation. If the inhalation be repeated at intervals, this quantity will gradually accumulate, and slowly induce sopor. The following case will explain

lady had been confined with her first child: she suffered severely with her pains; so much so that, when we arrived to house, her exclamations were loudly audible the moment entered. When the pain had ceased, there was an interval of and just as she began to move uneasily (the monitor of the pain), some chloroform was given through the inhaler; the

pain soon came, but she did not cry out as before; she moaned with it, grasped the inhaler, moved about uneasily, and when it ceased was equally surprised and delighted with the relief she experienced. So she went on for some time, inhaling just before a pain. At length, as the head arrived at the outlet, she was more under the influence of chloroform. She lay asleep in the in tervals, sometimes muttering; the pain roused her, she moaned and as it ceased she relapsed into a kind of doze. As the child head was passing over the perinæum (a time when the pains an always more severe), she did not mind it; an expulsive effort and a slight groan were the only indications she gave. The child wa born, she remained asleep, the placenta was expelled by pressure on the fundus uteri; she moaned, but was scarcely disturbed while she was in this state, the bandage was applied, and the bed settled. In about a quarter of an hour she gradually re covered consciousness, and said she knew quite well every pui she had, but did not know exactly when the child was born; she thought she felt it, but was not sure. In this instance my patient remained perfectly collected and conscious for about two hour from the first inhalation; in the next hour sopor was more manifest in the intervals after pain, and in the fourth, when the child was born, the pains themselves were scarcely noticed, the vapou slowly accumulated with each succeeding inhalation, and the symptoms of the first stage gradually merged into the third.

The Quantity of Chloroform required on the sponge when used in this manner varies from a drachm to two drachms. We were in the habit of using a drachm by measure, but soon found the so much escaped by evaporation, that this quantity had little effect it was therefore increased, and its strength tested by a different method. The vapour was generally inspired before administering it: if the quantity used be not sufficient it produces no effect, it otherwise, it feels very slightly pungent, and excites cough, precisely as the inhalation of ether, but in a less degree. By this means, also, impure chloroform may be detected, being much more pungent, and causing more irritation. The inhaler may be applied to the mouth, just before the pain commences, and con

tinued so long as it lasts; but the moment the pain ceases, it should be removed, and only re-applied on its return.

It is sometimes advisable to fan the patient when the inhaler is withdrawn, in order to disperse any chloroform that may remain about the mouth and face; because, being much heavier than atmospheric air, it does not ascend rapidly, consequently more may be inhaled during the intervals of the pains than the exhibitor is aware of; so also the position of the patient may make a difference in the effects. When she lies in the usual position, on her side, the inhaler is either on or below the level of the mouth, and she inhales only so much as she can inspire; but if she lie on her back, and the inhaler be applied from above downwards, more vapour passes into the lungs than would be drawn by the act of inspiration, if the positions were reversed. The inhaler should never be applied in the intervals of the pains.

The Time when the Patient should commence Inhalation depends very much on the circumstances of the case. We generally select the conclusion of the second stage of labour; that is, when the head of the child is descending upon the perinæum; because then the pains are generally intolerable, and the perinæum yields more readily under chloroform than without it. If, however, previously to this, the pains be so acute that the patient is evidently unequal to her suffering, chloroform may be administered without hesitation.

There is one condition of the cervix uteri, in which we have given chloroform with great advantage in the first stage of labour. The neck of the womb is sometimes caught and greatly compressed between the head and the pelvis. The pain is excruciating; the action of the uterus is often deranged or suspended; the woman cannot endure her agony, and her strong apprehensions interrupt the pains. Let her have chloroform, and she becomes tranquil; the action of the uterus returns regularly, and the dilatation is soon completed. Under such circumstances we have given chloroform when the mouth of the womb was not upened more than a sixpence, and were gratified to find the dilatation advance most rapidly. But if the parturient woman do not suffer so acutely (and many do not), if she can bear her

progress, them I in progress in the information in such a natural control of the control of the

Manufact, their strongs within its meaning cases of the proper difficulty. It is the first the expulsive efforts of the transition and within the initial is been without the aid of instruments and within the presented period of twenty-four hours from the against which the parameters within the transition of the parameters within the latter than the exchange of the transitions which follow—predisposes to a give that transfers measures, if she escape not secret attacks, that my titles makes

We have known his immostry if pain a cause convulsion. We were requested by a medical immid at see a patient of his income of her first in it. He described her pains as being most inverse. She was sometry table to entire them; that morning, in the middle of a partity of anguish, she was wired with a travelle of a partity of anguish, she was wired with a travelle of a bright assumed the epileptic character; movera, the followed, and in fact superseled the pains. He hecame alarmed, and requested our assistance. We found the neck of the would thinly stread over the head of the child, and forced down almost to the rules—the head of the womb was not the least open—the woman was then conscious, and complained very much while the examination was being made. We never most with so much irritability of the cervix; and, fearing another fit, we withdrew the finger.

It was agreed to let her inhale chloroform when the paroxysm was approaching, which had a most beneficial effect: the convulsion was arrested, and the pain returned, which she bore patiently. Thus, in place of every uterine contraction being marked by a paroxysm, they returned at long intervals—she had only three or four in the following twelve hours. At this time the head arrived at the outlet, and a still-born child was removed by the forceps. In all such cases, where the pains that accompany the first stage of labour are greatly aggravated, chloroform in invaluable.

Tame Dose of Chloroform given in precisely the Same Manner, Different Effects on Different Constitutions. With some, inhalation gives instant relief, and if continued, soon a sopor. With others, the inhalations may be frequently before any effect is perceived. Some cannot take it being excited: they ramble, and soon become incoherent. Experience the most delightful sensations. When chloacts promptly, the inhaler should be applied only at need intervals, merely to lull, but not remove the pains. in its action, it may be inhaled also by the nostrils; this is increasing its power may induce sopor, but this is ile to the uncertainties of the smaller dose, which scarcely the patient. If it cause excitement, it is better to we the vapour altogether, unless indeed the sufferings intense, and then it is advisable to induce sopor.

chloroform causes no inconvenience during its inhalation, ven in the gradual and cautious manner we have menIf violent cough or spasm, or sense of suffocation be chloroform is given either too rapidly or it is impure. chloroform often excites great bronchial irritation; the ies arise from the presence of alcohol and formic acid. The adopts the following very delicate test of the presence of.

some distilled water in a tube or glass, and drop on it quantity of chloroform; the greater part sinks immediately ottom of the vessel, owing to its great density—a small floats by repulsion, but may be made to fall in small by agitation. If the chloroform be pure, it remains at om of the vessel: but if it contain only a small portion ol, the globules acquire a milky opacity. Litmus paper nes the presence of acid. A simpler and much more ent test—one that is at least quite sufficient to excite n, is to rub the palms of the hands with chloroform; if ar be fragrant it is pure—if pungent, the contrary.

Action of the Uterus under Chloroform is not generally sted. The uterine contractions are governed by the reflex to-motor and the ganglionic nervous systems. The latter

excitation of the exc increased action. I suspended because th of chloroform, the glionic system restore the reflex system is more yielding and dila But in many cases, have great reason to de with this result. We which has quite as grea as chloroform. Mental known that nothing int shocks or great dread. aware of the importance going on in the lying-i guarded word may excite labour; nay, a vaginal because the patient is tak the apartment will cause It is not surprising, there! to inhale some chlore

ONS.

W the sa

either chlore ruggled agains I the pains, but " Patient expen with increased diciently for hours,

eletric Operations is required in surgical and folded handkerreat variety of inhalers: . Fleming, of Dublin. " a partially overlapping This capsule is somebeing two and a half to contain a sponge of comthe stem of the capsule is and trimmed as to have a · and so porous as to admit This sponge should be about I, in its upper about two, and upper than the lower wall, an most important." glass capsule. "The stem in al of a size to admit the top of is trumpet-shaped, whilst, on its on a plane below the rim of the sponge may rest upon it, and the cording to the will of the surgeon." The small sponge, which roform sponge," contains about a

led, and thus the quantity is regutered by any of those inhalers the quantity used should never

28. 29).

exceed a drachm, and even then its effect should be clewatched, lest the undiluted vapour should enter the lungs. can hardly occur without some notice, because of the spass the glottis it excites; but if this warning be neglected, and vapour still applied, notwithstanding the struggles of the pat the glottis will soon be in an opposite condition, and the vaenter too freely. This neglect, we suspect, has been the coff death in more than one instance. The inhaler, which applied to the mouth only, is by far the safest of these imments, because the quantity of vapour which passes into lungs is so very small, and so much diluted, that no sudden account can happen; and, as it is administered gradually, its increpower may be observed.

ADVANTAGES OF CHLOROFORM. The advantage of chlorofor obstetric practice consists, not alone in its power of contro the intensity of suffering to which the parturient woman is often unnecessarily exposed, but in promoting a more favour recovery. Since the publication of Mr. Travers' valuable on Constitutional Irritation, the profession acknowledge danger that sometimes results from intense pain. Patients died of the shock of an operation. It is denied, however, the pains of labour, be they ever so intense, produce any s to the constitution; we believe this to be utterly untrue. know nothing that predisposes more to troublesome conseque than long-continued and severe pain, especially with del women. Their recovery is always slow; and, while in depressed state, if a morbid poison be within reach, they sure to absorb it. The experienced practitioner knows well risk of constitutional exhaustion, which nothing promotes than intense pain. The following case may serve as an tration.

A poor woman had been a patient of University Co Hospital during the years 1849, 1850. She suffered from menorrhœa, stricture of the cervix uteri, and very narro tincæ. She was highly hysterical, and all the usual means of to give her relief. At length we divided the stricture; she better, and we lost sight of her. She returned, however 1852, pregnant, to apply for assistance in her approaching con-

She received a letter for attendance, and we committed her to the charge of two very intelligent and experienced gentlemen. More careful inquiries were made about her; and it appeared hat she was the servant of an old gentleman who had ample neans at his command, and there was strong reason to suppose hat he had a most confidential interest in her present situation. Why she applied to the hospital as a pauper was explained to us by the fact, that this gentleman had the reputation of being a miser; so we at once determined that he should pay for her. she was informed that the hospital was for those only who were lestitute; that under the circumstances we could not take charge of her, but that if she made her own arrangements with her medical attendant, we should give our services in the same manner as we at first intended, if they were required. She did so, and her confinement commenced January 10, 1853. During that day, labour pains, or what were supposed to be such, returned at intervals. She was highly irritable and impatient; the could not endure these pains, and sent nearly a dozen times or her medical attendant. To relieve her anxiety, he sent for s. We found that true labour pains had not yet commenced, so she was given a full anodyne.

January 11 was spent in a similar manner. She got some sleep; but in the morning the same teasing pains returned, and continued throughout the day. Chloroform was suggested, but the would not hear of it. The anodyne was repeated.

January 12. The first true dilating pains commenced with great severity; the mouth of the womb opened a little, but was very rigid and unyielding; leeches were applied with relief, and were followed by some advance in the dilatation; but again it emained stationary. She became very impatient after suffering, hrew herself about the bed, was constantly moaning, whether he pain was on or off, the only difference being the increased oudness of her exclamations during the contractions of the uterus; he would do or take nothing.

January 13. The os was more dilated. We saw her at night,

in consultation with her medical attendant. She was great exhausted, the dilatation was nearly completed, and the head entering the pelvic cavity. We again advised her to inlechloroform; she consented, and received immediate relief. Shore her pains quietly, labour made a favourable progress, she was delivered on the following morning. After the birt the child, the placenta was retained, but without hæmorrh. We were again sent for, and, finding it adherent, removed She was then bandaged and the bed arranged: she was perfect tranquil, her pulse good, and we left her much more comfort than we had expected.

We were greatly surprised that evening (January 14) to rec from her medical attendant an urgent summons to see her. found her so faint, at his last visit, that he thought she dying. When we saw her she was gasping, with a pulse (1 scarcely to be felt. There was no trace of hæmorrhage; uterus was well contracted; there was nothing to explain unexpected catastrophe. She made attempts to tell us someth but failed, and soon afterwards expired. As she had been by her medical attendant in so satisfactory a state, the stri inquiries were made as to anything that might have occu between his visits. All we could learn was this. The old tleman had paid her a visit that evening. Some altercation was supposed about the fee) took place; the woman fair assistance was sent for, and such was the result. Knowing great amount of pain she had gone through, being in con pain for four days, more or less, we concluded that it caus great amount of constitutional exhaustion, and that she unable to sustain a shock, which otherwise would only have duced its usual amount of irritation. This case may be comp with another, in which constitutional exhaustion was produced in a different manner, but was followed by the same result.

About twenty years ago (1834), a poor pregnant woman was a considerable distance to the Dublin Lying-in Hospital. In near it, she was suddenly seized with the pains of laboratory down—and was delivered in the street. She was as to the hospital, and received immediate attention. Nothing

rous occurred, but her alarm was very great: after some time subsided,—she slept—and nothing unusual happened until the llowing day.

On that morning, a patient was brought into the same ward in sich she lay, to be delivered. She occupied the next bed to r, and was extremely boisterous. The woman seemed to give attention to the disturbance. She lay quite quietly; but in course of the day she felt faint, and complained of being overme by her neighbour's cries. The woman who caused this s fortunately delivered, and thus all further annoyance was moved, but this patient did not recover from the effect that it oduced on her. In the evening, she was seized with an alarman was made, and nothing was found to explain the cause of r dissolution.

In both these cases, the obvious cause of death was the shock ven to the constitution previously exhausted; and had the mer patient taken chloroform when first recommended to do, we are satisfied this catastrophe would not have happened, cause, the moment she received relief, labour proceeded most pidly, and the assigned cause certainly would not have proceed so severe a shock as it did in her then exhausted state.

This case is quoted more at length because it clearly demonrates the effect of long-continued and severe pain on the constition. We might quote several to prove how much the recovy of the patient is promoted by the removal of severe pain, experience teaches that a favourable recovery is the rule after administration of chloroform. It was so in the first case in hich we employed it, and has been so ever since.

Another advantage applies to cases of difficult labour when the outh of the womb or the passages are unyielding.

We attended a lady in her first confinement, with whom the os eri was extremely rigid, so much so, that the whole cervix was reed down into the pelvis before the least dilatation took place: a waters escaped at the commencement of labour. We were prehensive of inflammation of the cervix and increased delay; a more so because, when the mouth of the womb at length

To the increased naution; at knoth it which the halffully occupied the vulva. arrowher. The head remained for ne expelled, and the funds being tightly re the was so you thus interrupted that But throughout this severe labour minument either in the os uteri, vi materia recommed most rapidly, and t weeks. In this instance, the lady was me may be contrasted with another, at the alling peringum sometimes rel A y tag girl, scarcely sixteen, was instituted which most unfortunately been i my-eight hours in labour: the the permanent could not get farther. the hast fillated: it was very difficult t mm. Still we had no choice but to app The first attempt was unsuccessful, be message: however, chloroform was umber its full industree, a second trial i

which was the chief difficulty, soon ga

which is worthy the attention not only of the accoucheur, but also of the surgeon. We have explained that the sentient nerves precede the reflex, and the latter the ganglionic, in yielding to its influence. Hence it is quite possible so to regulate the dose as to affect the sentient nerves only, and not the rest; pain may be relieved, if not removed, and the intellect remain undisturbed.

Sopor is not essential for the relief of pain. Any one may put this to the test by adopting a very simple experiment. If a small quantity of chloroform (say half a drachm) be dropped on a sponge, which is placed in a folded handerchief and held before the face at a short distance, the vapour may easily be inhaled. Two or three inhalations may be taken—just sufficient to communicate a feeling of warmth—and if the face or hand be then pinched, the person will scarcely feel it, although perfectly awake and in possession of his senses. The same experiment may be better performed with the inhaler that we use; there is less waste of chloroform, and there can be no error with regard to distance, when inhalations are thus taken by the mouth.

The obvious conclusion from these experiments is, that the risk from chloroform may be altogether avoided, and yet the patient receive a considerable amount of relief. In the practice of midwifery, the pains of labour can be assuaged and rendered tolerable without inducing sleep; and in the practice of surgery, it appears to us that many minor operations may be performed with equal safety.

THE DISADVANTAGES OF CHLOROFORM arise sometimes from want of sufficient experience in the administration of the vapour; sometimes from constitutional peculiarity.

Sickness of the Stomach has been caused by it. Dr. Snow has observed this when it has been given for surgical operations. He attributes this irregular effect to a neglect of the condition of the stomach at the time when chloroform is inhaled. "If taken immediately after a meal there is increased liability to vomiting; and, on the other hand, it is not advisable to inhale after a long fast; for, when sickness has occurred in this condition, it has been in some instances of considerable duration, and accompanied with more than usual depression."



epileptics, tha becoming unco when the full d dentistry or su wifery, and do moderate dose required; a sma stage need nevel idiosyncrasies, w selves, any irreg prevent accident. full dose of chlore THE OBJECTION tions as to the cor the best modes of have taken great and æther, and hav deaths from chloroi æther, where no de this general question sufficient to prove a AAn.....

ful and difficult to bear, where was administered through an inhaler. In about an hour the odour of where became strong in the room, and, as its administration was continued, increased to such an extent as greatly to inconvenience every one; the nurse in attendance seemed to suffer most, as she found it extremely difficult to keep awake. We were also slightly conscious of its operific influence, and felt that this inconvenience alone would be an objection to which chloroform is never liable; but along with this the extreme pungency of the vapour, the excitement it is uses in the patient, and the difficulty of administering it so as a avoid the escape of the where, are sufficient to decide the mestion in favor of chloroform so far as the practice of midwifery is concerned.

We have placed before you the properties, the effects, and the abstetric uses of chloroform; and if you please to avail yourselves of its influence, we submit for your consideration the following rules for its administration.

Rules for the Administration of Chloroform. 1. Let the chloroform be pure. If rubbed on the hands, the smell should be fragrant, not pungent like sulphuric ather. If inspired from the inhaler, there is a sense of warmth in the mouth, a fruity favour, no pungency; if the strength of the vapour be sufficient it will excite slight cough, but if impure, the cough is irritating. Let the sponge of the inhaler be placed in warm water, and then wrung perfectly dry. About thirty minims may be poured upon it, which is sufficient in the first instance.

- 2. When labour has commenced, do not interfere so long as the patient bears her pains well; if she be not teased with short, very severe, and inefficient pains, chloroform need not be given. If, on the contrary, the severity of the first stage be such, the anguish of the patient so great, that pain is evidently a cause of protraction, chloroform may be given with great benefit.
- 3. Always commence with a small dose, about thirty minims; if it agree with the patient no inconvenience is caused, but she will generally complain that it is doing no good; the quantity may then be increased until, on inhalation, the exhibitor finds he cannot take a full inspiration without cough.

4. In the second stage of labour, chloroform may be g when the head is approaching the perinæum, or before the the pains become intolerable. This may be known not me by their greater intensity while the uterus is in action, but by the restlessness of the patient in the intervals. She watchful, dispirited, still crying, but in a more subdued to from pain and a feeling of soreness.

5. When the head arrives at the perinæum, chloroform no be given in a fuller dose, if it have not already accumulate The perinæum yields more easily under its influence, and severity of the pain is controlled without any loss of force.

This rule applies especially to cases in which powerful force pains are acting against the perinaum at the hazard of its lacation.

6. When operations are necessary, if they be not severe, for instance, some forceps operations, chloroform may be gi in the same manner as in natural labour; but always after instrument is applied. If they be severe, the chloroform may given as in surgical operations, but not to the same extra Hence an assistant is necessary, who is quite conversant with properties of this anæsthetic. It is obvious, that the same per cannot operate and simultaneously give the full soporific dose this agent.

7. The inhaler should be applied to the mouth, just before pain commences, two or three full inspirations taken, and moment the action of the uterus ceases it should be withdraw. The inhaler should never be applied in the interval between pains, and if used in the middle of a pain, the cries of the path blow away the vapour, and no relief is given.

8. When inhalation has been continued in this interrup manner for some time, if any alteration be observed in the contenance or manner of the patient; if the face be flushed, bloated, or tinged with a slight lividity; if she ramble, or become hysterical, let the inhaler be withdrawn, and the face of patient fanned. Wait until the pains return to their original severity before renewing the inhalation, when it is probable to these symptoms will not return.

In some instances, the patient is very intolerant of her s; and, if chloroform be given to relieve them, she becomes serical, crying, perhaps, louder than before it was inhaled, here cases it is better to induce sopor, which may easily be a without stertor. For this purpose a sponge and folded discrehief applied to the nostrils is preferable to the inhaler. enever sopor is brought on, the closest attention should be a to the countenance—observe the irritability of the eyelids; he respiration—notice its frequency, and especially stertor; he pulse—mark its strength. The handkerchief should the pulse held at a distance at first, and be gradually brought er, but the sponge should never be applied quite close to the rils.

There should be the freeest circulation of air in the apart and if, after delivery, there should be any feeling of faint or nausea, ammonia in effervescence will relieve it.

y ordinary caution and attention to these rules, chloroform be administered with perfect safety in the practice of midry. The practitioner who ventures upon its use will soon be fied of its great advantage, not only in very severe cases, but in many of the ordinary cases of natural labour.

would only ask him, in conclusion, to disregard the idle ours with which he may be surrounded; to disengage himself preconceived notions about an agent that he has not nined; but, as is his duty, to study the properties of the thetic proposed to him; to try by experiment whether the ments respecting it are correct; and, in fact, to judge for eff "whether these things are so."

# LECTURE

CONVALESCENCE AF

HITHERTO our attention has been present themselves during the dev being. The dormant uterus is t exerts a powerful influence over all as it were, a centre of action to 1 constitution are directed. When t child is prepared to leave its ter series of phenomena are observed enormous expulsive power of the opposed to it. We have already which the balance is preserved be the mechanism by which difficulties degree of constitutional disturbance those efforts. In the whole of th perceive a progressive series of opera greatest was parturition: the powers reached their climar of ar.

t either complains of feeling cold or is actually shivering; xperiences also a certain amount of depression; she feels isted, and occasionally a slight temporary wandering gives distinct evidence of the exhaustion of nervous power. The welve hours that elapse after the delivery of the parturient in are essentially a period of repose; and if, by good gement, the patient be left undisturbed during that or even ch shorter interval, if she obtain a sound and refreshing the rapidity with which the constitution is restored is surg: the mother has forgotten all her sorrows, is cheerful, sed to talk, and, so far as her own feelings are concerned, ould get up and go about as well as before her delivery. In ext interval-say twenty-four hours-a slight change may bserved: a new function, that of lactation, is becoming and its influence on the vital functions is manifested somevery distinctly. The circulation, which before was below ow rises again to the inflammatory standard. The paroxysm kind of natural fever is present, going through its stages of interval, and sudor. There is a certain amount of thirst, erhaps slight headache. If there be no interruption to the by fulfilment of this function, these symptoms disappear as all secretion of milk is established, and no further constial change may be observed. If we turn our attention from ion to the uterus-from functional to local symptoms-we also observe appearances that mark important changes forward. The uterus is now preparing to resume the size it had previously to conception, to return to its ordinary ion of menstruation, and to withdraw itself from that sphere trient activity in which it had been engaged. We have fore to consider the volume of the organ, the permanent action of its fibres, the rapidity of interstitial absorption that place. The internal surface of the uterus, especially that which the placenta had been applied, is well compared by eilhier to a large open wound. From this surface a dise takes place, at first grumous, then greenish yellow, thick leaginous, and lastly thin and serous, when (about the tenth elfth day) it ultimately disappears. The wound in then



val-so-nce into three periods: first the mid heattlen—between the birth of the secretion of milk; secondly, the period hactation rises to its highest point of actilished; and, thirdly, the period occupies its condition previous to conception. I proper fulfilment of these vital actions every variety of derangement; each of our attention and treatment, and thereformalied.

First Perion.—Dangers of Over-E1

First Perion.—Dangers of Over-Ei immediately after delivery, the cause of found in the errors of those who are patient. It is a period of constitution exalted degree of functional activity, perfect repose of the system is require procured, it is no poetic fantasy to call it? You readily, therefore, understand the if this be interfered with, if the patie and be kept in a constant state of excite why it is that the accordent has to constant that the

from that which she now seems to enjoy. He can foresee impending danger in that which is looked upon only as a temporary inconvenience by those who have not experience to guide them.

Besides excitement of this kind, another error in management may be committed of a perfectly opposite character; the nurse may very judiciously expel all intruders, and so far succeed in keeping her patient quiet, who would enjoy the repose necessary for her, if, unfortunately, the nurse herself had not a strong prejudice in favour of making her " clean and comfortable ": that is, she is not satisfied with the temporary arrangement of the bed that had been made on the birth of the child; all the soiled sheets and bed-clothes must be removed, her patient's dress must be changed; and, after all this is done, the nurse consoles herself in the belief that she must sleep comfortably. But in every step of this process there is danger, either immediate or remote. The patient cannot be moved about in this way without disturbing the abdominal bandage that was to secure and support the uterus. If the patient leave the horizontal posture-and she is often allowed to sit bolt upright-the blood again accumulates in the nterine veins, and the surrounding fibres readily yield to this distension when the stimulus of external and equable pressure which the bandage supplied is removed. Blood is consequently poured into the cavity of the uterus, and this, if it go no farther, exposes the patient to a very severe attack of after-pains; but it may flow away, and produce a most violent and dangerous flooding. Your patient is thus exposed to the risk of her life at a time when every moment is of the highest value, and you are probably an hour's distance from her. Or, again, if the patient escape this serious accident, another and an equally unpleasant derangement may be induced by the same cause. A delicate woman is much more susceptible of nervous irritation at this than at any other period. If her rest be disturbed, or her sleep put astray, she remains wakeful and unrefreshed; presently the senses become more than usually excited; the noise of her infant, although from another apartment, disturbs her; light is exceedingly unpleasant to her: nevertheless, although the nurse carefully darkens the room and closes the bed-curtains, the patient

The state of the short of the s

were might terminate in the Early Application of Child

inch to their first child are slowed those who have had several children in obedience to a popular rule, threast as soon after delivery as it con When the woman is strong and he had the she had an irritable temper no make heary secreted, the child over all heary secreted, the child over all heary secreted the child take the mother beginness in patient, sits up it could effect it she had to resign seems like us a ten ushers in a tree tent of the site of the strong seems like us a tent ushers in a tree those who had seems the seems and the seems of the seems o

become states in have son

is produced in a different manne breast before there is any milk :

From it Ten also may be very stated that the fatient has had because an and enjoy and There is therefore, the great more a mattain in improper food

fixely to be committed, because no ill consequence immediately follows the indiscretion, nor will the mischief become apparent until reaction sets in; but when the pulse begins to increase, and the milk to form, the natural febrile paroxysm is superseded by one of a more serious character; or, if there be the least tendency to inflammation, it will show itself in a most aggravated form, because of the activity of an over-excited circulation.

For these reasons, you will perceive the importance of securing to your patient undisturbed repose after her delivery. If she be of an irritable temperament, an anodyne may be advisable for this purpose. When this important object is gained, caution is necessary to avoid any indiscretion in diet. Toast and tea, barley-water, gruel, are examples of the class of dietetics to which, as a general rule, she must be confined. The exceptions are women of feeble constitutions, who require a more nutritive diet.

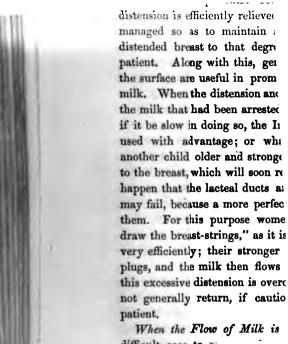
SECOND PERIOD.—This is marked by an increase in the force and frequency of the pulse, a slight rigor, some thirst, and perhaps slight headache: the breasts are becoming distended. If the previous management of your patient have been judicious, and no morbid causes of derangement be in action, she will pass safely over this hazardous period. The distension of the breasts and the natural fever that accompanies it, are relieved chiefly by the child. When the milk flows freely, the febrile symptoms subside, and the function of lactation is established. But a very slight cause will derange this natural process. Improper food, for instance, is a frequent cause of disturbance; reaction may become excessive. In some cases, the patient has a severe rigor followed by profuse perspiration—the milk-fever of authors. In other instances, the formation of milk is too rapid, although not accompanied by such marked symptoms of fever: the breasts, however, are tensely distended and painful, and present to the infant a firm unyielding surface: it cannot grasp the nipple sufficiently to fulfil its duty of suction, the mammæ are not relieved, and the danger of local inflammation at once presents itself. In a third class of cases, the lacteal secretion may be suspended or suppressed - a more ominous symptom, because it

indicates a disordered action of a much more serious charthan either of the preceding. The excited circulation is a towards some other centre than the mamma, and the absermilk is only the precursor of some deeper-seated inflamm if not of puerperal fever itself. Thus you can understan reason why so much caution is necessary previously to lact and why the experienced practitioner is so solicitous that function be safely established.

Causes interfering with Lactation. If the child be her and able to draw the breast-if the mother be properly man previously-this object is generally successfully accompliand the fulfilment of a duty, the most grateful to the fe mind, will rapidly promote your patient's restoration to pe health. But how many drawbacks, independently of already alluded to, will prevent this! Both local and contional causes may throw impediments in the way of success. nipple may be ill-formed, too small or too large, or per flattened by the fashionable corset so completely as to for depression in place of a prominence. The child, there cannot seize it. Or it may happen, that the extremely del integument that covers this erectile structure is very irri and easily inflamed, consequently it will not yield to the traof the child: it gives way at the base of the nipple-fiss are the result, that bleed readily, and in place of a comfort enjoyment, the nursing of the child becomes to the mother greatest source of anguish and distress. Again, there are of a different kind; the breasts and nipples are well for nevertheless the milk will not flow, because the fine lacteal of are not free to transmit it. They are plugged with a t tenacious secretion that the child has not sufficient suction-p to extract and remove. All these are merely local causes interfere with lactation; but the impediment may exist in constitution of the patient. We have already allude excessive reaction, the milk being secreted more abundantly the child can manage. The constitution may, however, I an opposite condition to this: there is scarcely any reaction milk is secreted scantily, and what is extracted contains

e nutrition; the infant, therefore, is never satisfied. After ing obtained what it can it may sleep, exhausted by its efforts fraw the breast; but it is only a momentary doze; the child wakes up, becomes feverish, constantly crying, and ravenly hungry: the mother has no further supply, her very nety contributing to arrest the secretion; and thus difficulties no ordinary character oppose themselves to your wishes. ere are also certain constitutions where there is no deficiency milk in the breasts-the fault is not the quantity but the lity; the milk is abundant but does not satisfy the child, or sibly it may produce a considerable amount of irritation: the d has scarcely taken a sufficiency, when it is again ejected n the stomach; or if this precaution of Nature should not e place, there is every evidence of irritation in the passage of milk along the intestines; an exhausting diarrhoa may place infant in extreme danger of its life, or it may be exposed to the torments of colic: its wild screams, that cannot be appeased, ving the agony that it is enduring. Thus you may perceive y it is that the second period is of such critical importance your patient's health, and such a source of anxiety to the ctitioner. You may also learn that, although as a general it is most desirable that every mother should nurse her child, re are many, too many, exceptions where this grateful office not be fulfilled, and where this duty must be delegated etantly to another, or the infant be supported by artificial tations of its natural food.

the various preparations that are offered as substitutes for k, and in the hard names that are given them, there is a mary skill displayed that almost rivals Soyer himself, winaceous food," "tops and bottoms," and "tous les mois," only a small part of the delicacies meant to supersede the d and nutritious fluid that nature designed for the infant mach. Like other delicacies, also, they frequently excite a delerable amount of disturbance in the digestive organs. We not, however, about to discuss the management of infants; for the mother's sake it would be desirable to avoid these



When the Flow of Milk is difficult cose ---

er intervals than usual; twice perhaps in the day, and once ight, so as to allow the milk that is slowly secreted to accuate. The artificial food of the infant should approach as to human milk as possible. If expense be no object, asses' k is the best to give it. If otherwise, cows' milk may be ated with water, or very thin barley-water, in the proportion two parts of milk to one of water; or the curd of cows' milk be removed by rennet, making rennet-whey; some sugar st be added, because cows' milk contains more curd and less ar than human milk. Your patient will require a more tritious diet than can usually be given after parturition; even nulants are sometimes necessary; broth, soup, or meat may given; and with caution, warm negus. It is here that the tues of caudle shine so conspicuously. It is very essential also, the mother be secured sufficient rest. These patients are ticularly restless; an anodyne is therefore frequently required. combination of camphor with opium or morphia, æther, or rits of ammonia, with liquor opii sedativus, will be found ful. Perfect silence must be especially maintained in the g-in chamber: the noise of the infant, or even the whisperings he nurse, are sure to rouse the patient, and if so there is a at risk that the anodyne may act only as a stimulant, and p her awake the whole night. In this treatment of the ent by good diet, stimulants, and anodynes, the bowels are y likely to be locked up; and if so, there is a great risk of ther derangement. Purgatives are therefore necessary, but of the hydragogue class. Castor oil, the aloes and myrrh or any of the warm aperients, may be given. Enemata are bly serviceable if the intestines be sluggish: the fætid enema, for without turpentine, will be found useful; and we have asionally derived advantage by giving at the same time the parations of iron. We have found the phosphate of iron in fgrain doses, with a single grain of the compound colocynth taken twice or three times a day, more efficient than treble quantity alone. By such means you may possibly succeed nabling your patient to nurse; but as it is very doubtful, the stest attention should be given to any symptom that would

indicate constitutional exhaustion: headache, or neuralgic pain after nursing, watchfulness, irritability of temper, loss of appetite, any or all, may result from inability to maintain the function o lactation. Their appearance should be carefully observed, and considered sufficient to prohibit any further attempts. Of course if the milk disagree with the infant, this is equally an objection under such circumstances, however, the mother will much more willingly resign her office than when the question concerns here own strength of constitution only.

Fissured Nipples. The local cause that chiefly interferes will nursing, is the extreme tenderness of the nipple-the fissures, "sore nipples," that are the result of inflammation. If attention be paid to the breasts before parturition, if the active capillar circulation about the nipples be controlled by astringents, we brandy, tincture of myrrh, and such like, being daily applied them, there is less risk of accident afterwards. This process "hardening the nipples," as it is called, is often quite successful It may, however, fail, or may not have been tried. As soon a the child is applied to the breast it causes great pain: inflamma tion follows, and a fissure is the consequence. From the moment this happens, your patient's miseries begin: every time the chill is applied, the wound is opened and bleeds; the inflammation increases, the nipple swells and becomes painful, even when the child is not drawing it; but the pain is intolerable when it doe so; and thus a very slight inflammation in the commencement may be so aggravated as to require weeks before it is quit subdued.

The treatment of sore nipples is the treatment of simple in flammation; and the first and most essential point to effect is the prevention of the fissure. It is here that the intelligence of the nurse is of the most assistance to you. It is not usual for the practitioner to examine the nipples of his patient from day to day, although there is no reason why he should not do so, if he have the least reason to suspect inflammation; but it is the nurse's duty to apply the child to the breast; she has the opportunity of daily, of hourly observation: if there be any great pair and unusual swelling and redness of the nipple, she is the first the

Proceive it, and may give timely notice to prevent the lesion that Otherwise would take place. If, therefore, the nurse be intellisat, you are informed what is the condition of the nipple, and in this first stage a mild astringent may arrest it. We have found alum-whey useful as a lotion; the curd that is thrown down may be applied as a poultice to the nipple; the child should be applied as seldom as possible, and before doing so it would be well to guard the nipple with a circular piece of adhesive skin, having a hole in the centre, just sufficient to leave the crifices of the lacteal ducts uncovered. This will diminish the irritation of the infant's gums, and render the operation of nursing more tolerable: a fresh poultice may afterwards be applied, and thus the fissure prevented. Legroux has employed for this purpose a compound consisting of collodion, castor oil, and oil of turpentine. These, when united, form a liniment which is quite adhesive, and dries more slowly than collodion alone. While it is yet soft, gold-beaters' skin may be placed over it, and thus an artificial skin is formed which must be perforated to allow the milk to be drawn. Zinc shields are also useful, the moisture from the nipple forming an imperfect oxide, which allays irritation. If, however, the fissure take place, and the nipple be exceriated, the child should not be put to the breast. A broad bandage may be applied, and the breast from time to time gently rubbed with warm oil; the milk will thus flow freely, and overdistension be avoided; the tendency to inflammation being also subdued, the fissures will more readily heal: but in order to hasten the healing, nitrate of silver may be used in solution, in the proportion of ten grains to the ounce: a slight eschar is formed, which, when it separates, leaves a sound cuticle. Nippleshields are also used, which are intended to enable the mother to nurse notwithstanding the excoriation. In other words, the child is to draw the nipple through the shield, which, it is supposed, prevents all irritation. Very fortunately, in most instances, the infant either cannot or will not suck in this ingenious manner, and therefore the shield is so far useless; but if it could, so far from irritation being prevented, it would be considerably increased: the act of suction still opens the wound, and draws it

to forbid the reluctant mother ma nurse her child. The secretion prevented. The mode of doing so tution of the patient; if she be of a purgatives, with nauseating doses of given with advantage; some milk breasts, and a bandage applied or firm and equable pressure, and th remainder: if there be much disten warm frictions will be found extr women, or those in whom the circu not require very strong aperients nor times cold applications, as the acetat or, if you please, eau de Cologne, wi purpose, a broad bandage being ap If not, a mild aperient, the potassiowith a low diet, will certainly succeed THIRD PERIOD .- It is necessary th apprehension of the condition of th of the child. First, the contraction

> coming permanent, and a state of unlike the rigor mortis, is the evider

had been attached, are again shrinking to their former size; and the tide of blood which for so many months had been flowing towards this membrane, is now ebbing fast away from it. Fourthly, the vagina is also contracting itself with great force, and the abundant secretion that had been flowing from it is now gradually ceasing and returning to its original state. We have, therefore, to consider, under their several heads, the symptoms that present themselves while this change is going forward, especially those that require our aid in the way of treatment.

After-pains frequently present themselves while the uterus is contracting: they are generally severe, and depend upon different causes. They also occur more frequently with women who have had many children, than with those who have given birth to their first-born.

Coagula collecting in the uterus very commonly cause aftermins: blood, when poured slowly into the cavity of the uterus congulates, distends the parieties of the uterus, and excites spasmodic contractions. If this happen soon after delivery, the patient experiences pains as severe as labour-pains; the agony sometimes endured is even greater than that of ordinary labourpains, and relief is urgently called for. In some instances, this may be promptly afforded by using a steady pressure over the fundus of the uterus; the irritation excites a more powerful contraction; the coagulum is expelled, and the patient is relieved. This method, however, can only be adopted within from four to six hours after delivery, so long as the alternate contraction and relaxation of the uterus has not altogether ceased: the contracted fibres of the cervix and lower portion of the body will then yield to the more powerful action of the fundus, and allow the clot to pass. But at a later period this is not the case: the permanent contraction of these fibres cannot thus be overcome, and, if too much irritation be used, inflammation of the uterus may be the result. When this period has passed, therefore, it is better not to make such attempts, but rather to endeavour to effect the same object in a different manner. For instance, a warm stimulant cathartic enema often does so; the action of the ntestines is excited, and by sympathy the action of the uterus.

The same straining efforts that expel the face expl and relief is experienced soon after the motion; if a anodyne, in combination with chievic other, and the is cution of hot formentations, will generally succeed.

Flatus in the intestines also gives rise to severe This cause may generally be recognised and distings the former by a careful examination of the abdom coagulum is present, the uterus is generally large, and exceedingly painful on pressure; every other abdomen is free from pain, and generally soft, if not when flatus is the cause, the abdomen is tympanitic: cannot be felt, and the slightest touch gives intense very character, however, is a valuable means of di the pains so produced from those of inflammation pressure causes great pain; but if it be increase diminishes until it quite disappears: if after this ! suddenly withdrawn from the abdomen, the pain inst with increased violence, so that we have known the pr with the agony which this simple act produces. mation is present, which is also accompanied by tyr greater the pressure the greater the pain.

The best remedy for these pains is turpentine. The of turpentine, and the same of castor-oil, may be mouth, or a terebinthinate enema may be administer observed that the patient generally obtains relief belong purgative effect, as if the turpentine acted as a the pains continue after the bowels are relieved, to stimulants, chloric either or ammonia, with opium, with opium, with disperse them.

Both these causes of after-pains come into operat quently with women who have had many children obvious reason. The muscles of the abdomen h weakened by frequent pregnancies, that they give a the intestines when the uterus leaves the abdomen; of they become over-distended with air, and tormina as so also the uterus is deprived of that equable pressur so maintain. It yields more readily to the

of coagula; and, in place of expelling them, allows them to accumulate and produce after-pains. Another kind of afterpain, however, is occasionally observed, which may happen after a first labour just as well as any other.

Neuralgic Pains of the Uterus sometimes give rise to very evere suffering after delivery. This cause may be distinguished from either of the former-by the natural feel of the abdomen, which is soft and free from pain; and by the size of the uterus, shich is very little increased. It feels unusually firm under the hand, and is exceedingly painful when pressed upon. We have applied to these pains the term "neuralgic" as best expressing their character; but we would not wish to imply by this term an esentially nervous affection; on the contrary, we are rather disposed to look upon it as a form of uterine inflammation, very different certainly from those forms that occur after parturition, and which are more commonly described, but still a variety that is well worthy of attention. During pregnancy it is met with, and there receives the name of rheumatism of the uterus. In the unimpregnated uterus it is found in a form of dysmenorrhea. The inflammation is essentially chronic, and only rendered acute when an increased flow of blood is determined towards the uterus. Its seat is in the fibrous structure.

The treatment of these neuralgic after-pains differs from that of either of the former; in fact, you are called upon to treat a peculiar form of uterine inflammation. They are best relieved by opium; and the previous application of a few leeches to the uterus makes it more efficient.

The Lochia is the discharge that flows from the uterus and vagina while the mucous membrane is returning to the condition in which it was previously to conception. The character of the discharge will indicate whether the changes that are going forward are healthy or otherwise. At its first appearance it is sanguineous: the dark grumous blood oozing from the uterine veins gives it that character. It then becomes greenish yellow, thick and oleaginous; and lastly, is thin and serous. It may retain the sanguineous colour too long, and it may be brighter than is safe for the patient: the vessels have not sufficiently

closed; and so long as this is the case, there is all hamorrhage taking place, if caution be not use appearance continues, therefore, the patient must and as much as possible in the horizontal pasity, in small doses, frequently repeated, might advantage; and, in anaemic constitutions, the tild chloride of iron, or the phosphate or sulphate useful. These remedies will assist in checking but all may be rendered ineffectual if the patien much includence. Improper tood, sitting up in about, may convert this discharge suddenly into

about, may convert this discharge suddenly into The thick oleaginous appearance may become a purulent. When this happens, it indicates premation in the vagina or neck of the uterus. T is not acute, and therefore may not give rise to a nent symptoms that would attract attention. exists, and its presence is of importance, because consequence. Your patient may so far recover l he able to get up and go about without much This discharge, however, continues, and may cont until some new change is observed. perfectly from her continement, and your duties but these new symptoms, a pain in the back and weight and bearing down, give rise to anxiety; uance, or perhaps the increase, of the purulent of as it were the connecting link between these sy previous confinement. Thus, the whole of her p attributed, perhaps justly, to that period. There that something happened then that should not have something was done that should not have been just possible you may get the credit of not havin duties at ail, and of being the cause of all the p You will admit, therefore, that a purulent characte discharge is of sufficient importance to deman attention. It is necessary to ascertain the cause scurce in the vagina, or in the cervix of the u

exity of the cervix? All these queries can only

examination of the parts themselves. Such an examination. owever, cannot be advantageously made during the lochial eriod. It is only when this time has passed over, and the disharge has assumed more distinctly the character of leucorrhea, dat it may be required. The cervix of the uterus should then e carefully observed, to ascertain whether it may have been m: if so, fissures will be found in it, which may be inflamed, perhaps ulcerated. The cavity of the cervix also should be ticed, especially if a thick viscid mucus be adhering to it, lastly, the vagina requires attention: there may be abrasions on surface, or a slough may have separated, leaving an ulcer hind, or it may be generally inflamed, the inflammation being a subacute character. All or any of these causes will give to the secretion of pus; and, unless they be at once removed, my increase, and expose your patient to months of protracted fering long after her delivery. You will perceive, therefore, at the lochial discharge requires observation; and if, from your quiries, you should have the slightest suspicion that it is not withy, you should no longer take second-hand reports about it, at examine for yourself.

Lacerations of the Perinaum are unfortunately the too common companiments of labour. It very seldom happens that the wrchette escapes being torn; but this will give you no trouble. he integument may also give way, and a rent of different crees of extent may be formed. It may engage the cellular stucture alone; it may pass down to the sphincter of the rectum, go even through the sphincter, and throw the rectum and raina into one cloaca. You can readily judge what a serious wident this would be, and to what misery it would expose war patient. It occurs, however, very rarely, and can hardly the place without extreme neglect, or carelessness in the manement of the patient during the expulsion of the child. When happens, there is no remedy for it but to attempt to re-unite wound by the interrupted suture. This means cannot be posed immediately after delivery, nor so long as there is any is of the extension of the inflammation through the vagina to be uterus. When, however, this danger is removed, and the

vagina and peringum have contracted nearer to their nat size, this operation may be performed. Partial lacerations however, more frequent. It is better to allow the torn man to heal by second intention, and not, as in the former case, attempt to re-unite them. At first sight, these lacerations app much more extensive than they really are, because the period is so much stretched by the passage of the child. When c traction, however, takes place, the wound gradually shrin until a rent apparently of some inches may not really exc the quarter of an inch. You cannot, therefore, so well jo of the effect of the injury until this contraction has taken pl While the edges are healing, they should be protected from irritation of the discharges by applying between them a piece lint covered with cerate or zinc ointment. The patient she also remain on her side rather than on her back. Then generally no difficulty in healing these lacerations: we have consider rather their subsequent effect. The most comt consequence is the tendency to prolapsus of the womb. powerful support which the healthy peringum gives to the pe viscera is now destroyed; and the weight of the womb, large, presses down on to the vagina, which, unsupported, res yields: and thus prolapsus uteri is established. In order avoid an accident of this kind, the patient should remain los in the horizontal position than usual, so as to avoid bringing weight of the enlarged womb on the vagina. After the te day (the usual time for the cessation of the lochia), astring injections should be used, to increase the contraction of vagina as much as possible; and lastly, when the patien allowed to go about, it would be advisable to use some med ical support to the uterus for a short time. There is a g variety of uterine bandages. Some press on the abdomen for above, as well as on the perinæum from below; others applied merely to the perinæum. You would, of course, se only the latter. A well-made bandage, that fits closely at the hips, and having a perinæal pad attached to it, is a support and comfort to the patient when she first moves This may be discontinued after some time.

Lacerations of the perinæum are of frequent occurrence. Those requiring operation are few, and require time to determine its necessity; we would caution you, therefore, against assuming that an operation is required because the perinæum is torn, and that the sooner it is done the better. On such a principle the surgeon would perform many very skilful operations which were perfectly unnecessary, and not a little dangerous.

## LECTURE XXXVI.

## POST-PARTUM INFLAMMATIONS.

INTLAMMATION of the uterus and its appendages is a frequent consquence of parturition. A severe labour gives rise to a certain amount of congestion in the vagina and cervix of the uterus. The passages are in the condition in which a very slight cause would light up inflammation. The labour itself, and too often the management of it, give rise to many causes of injury; and inflammation is the result. Again, it often happens that the treatment which is essential either at the delivery of the patient, or immediately afterwards, becomes a cause of inflammation. You may be obliged to pass the hand into the uterus to turn the child, or to remove an adherent placenta: some injury may be done to the cervix or to the cavity of the uterus. If the patient mifer from severe hæmorrhage, the cold that is applied to the vagina and about the uterus, the different modes of exciting the merus to contract-such as the introduction of the hand, or the mjection of cold water-all are causes that excite inflammation in the body of the uterus when reaction takes place.

The forms which inflammation may assume are as various as the causes that produce it. Inflammation may be confined to the vagina and mucous membranes of the uterus; it may engage the body of the uterus, the ovaries, and the peritoneum; the veins of the uterus may be its seat. The inflammation is generally acute, but it may be chronic; and lastly, its character may be sthenic or phlegmonous, asthenic or typhoid. Acute post-partum

inflammations may be divided into sthenic and asthenic; and in order to simplify the symptoms, it is better to confine your attention to inflammation, as it affects separately the different tissues of the generative organs.

Sthenic Inflammation of the Vagina. This form is generally met with after severe labour with the first child. The vagina is less disposed to yield to the pressure to which it is exposed; there is a greater degree of congestion; and if delivery be delayed, inflammation is a very likely consequence. It is not, however, protraction alone that excites it: inflammation is more frequently produced by the very means that we adopt to shorten labour. It is here that the use, or rather the abuse, of instruments becomes so mischievous. It is in this condition of the vagina, that examinations often repeated with the exploring finger are calculated to do much injury. If the perinæum happen to be torn during delivery, which is highly probable, the wound becomes an exciting cause of inflammation.

The Symptoms are chiefly local. The patient complains of a great degree of soreness at the vulva; the urine is retained, which is perhaps the first symptom that attracts attention; the lochial discharge is more than usually offensive; and the patient can get little rest. If an attempt be made to pass the catheter, the pain is excruciating if it should not pass at once into the urethra; and hence, in a case of this kind, this apparently simple operation becomes an experimentum crucis of the tact and experience of the practitioner. The cause is obvious: the vulva being inflamed, the nymphæ, the vestibule, the orifice of the urethra, and especially the clitoris, all are exceedingly tender: the characters of the trumpet-shaped opening of the urethra are altogether lost; the parts surrounding the orifice are so swollen that they almost obliterate it, leaving only a pin-hole opening not easily discerned. Hence the inexperienced practitioner, being at a loss to find it out by touch, may make very tedious and painful attempts to pass the catheter, and fail. The urine, however, must be withdrawn: assistance is sent for, and the catheter is then passed at once. Now this awkwardness is never forgotten-we might almost say, is never forgiven; and, therefore, if you wish to avoid one cause

e exposures that sometimes reveal incompetency, you will our to educate your sense of touch on this as on other of practice, and learn, by frequent examination of the al orifice in ordinary cases of labour, its exact situation and as. The pulse is generally frequent and resisting. The en may be perfectly free from tenderness, the uterus bears re without inconvenience, the iliac regions may be without out this frequent pulse is a certain index that inflammation heless exists; and the probability is that it has its seat in acous membrane of the vagina.

sinations. Sthenic inflammation of the vagina may terin resolution without any injury or abrasion of the es, or it may be followed by abrasions and superficial ions of the mucous membrane, or may end in slough. The the only serious result, because the seat of the slough is unfavourable. When the head of the child is passing h the brim into the cavity of the pelvis, the points that the greatest pressure are the extremities of the conjugate the head is pressed strongly against the os pubis and the ntory of the sacrum. The urethra, which lies between the nd os pubis, is sometimes so bruised that slough and fistula consequence. Hence may be established one of the most ageable and distressing affections to which the female can osed-a constant stillicidium urinæ through the vagina. A at the opposite point, the promontory of the sacrum, is within the cervix uteri, which may thus be very much ned. When the slough separates, and the surface heals, rtion of the cervix is greatly thinned, causing no further iate injury, but in a future labour exposing the uterus to the risk of laceration. So also the vagina, at its juncith the cervix, may become gangrenous; and this can y occur without the neighbouring tissues also being involved inflammation. The reticulate cellular tissue between this of the vagina and the peritoneum may become inflamed, oduce those extensive suppurations that are described as abscesses; or the peritoneum itself may be engaged. Thus ination of vaginal inflammation in slough must always be upon as serious.

The Treatment of phlegmonous inflammation of the vagina is essentially antiphlogistic. Warm emollient enemata, warm fomentations to the vulva, and injections into the vagina of warm decoction of poppies, will contribute very much to allay the distress which the patient experiences from the great tenderness of the passages. Mercury may be also given moderately, so as to prevent the extension of the inflammation, but should not be used to the degree of causing salivation. If the urine be retained, the catheter should be passed every six hours, until the inflammation is sufficiently subdued to enable the bladder to act without assistance. As soon as this takes place, warm fomentations may be omitted, and cold astringent injections substituted; liquor plumbi, in the proportion of a drachm to a pint of distilled water; the alum lotion, ten grains to the ounce; or the infusion of catechu, may be used with advantage. By such means inflammation of this sthenic character will generally subside without difficulty; but when it has passed away, and the lochia have ceased to flow, it will be necessary to make a careful examination of the cervix uteri and vagina with the speculum, in order to detect any lesions that may be left.

ASTHENIC INFLAMMATION OF THE VAGINA is a far more serious result of labour: the whole vagina is quickly engaged in the inflammation, which sometimes extends to the uterus. Its tendency is to terminate rapidly in gangrene; which is not confined as in phlegmonous inflammation, to a point or a small space, but spreads over a larger surface. Thus an extensive slough has thrown the rectum and vagina into one; large portions of the mucous membrane of the vagina have been separated, and sometimes even the whole of it has been detached and thrown off. If the patient recover from such consequences, she is still exposed to the risk of further mischief. The new vaginal surface may heal most unfavourably: adhesions sometimes take place between the opposite walls of the vagina, so as to obliterate the canal, or bands of lymph may pass from one side to the other. In some instances the vagina becomes quite contracted in the centre, forming a kind of stricture; and thus, if the patient become again pregnant, and labour take place, new difficulties oppose themelves to delivery, of a character still more dangerous than those that may have previously existed. The vagina and the uterus have been torn during labour, in the effort to overcome this stricture.

The Causes that give this character to the inflammation are those that produce constitutional depression or that alter the healthy condition of the blood—foul air, bad diet, mental anxiety, etc.; or the direct absorption of some morbid poison, which has the same effect. Here, as elsewhere, when the blood is in this mate, inflammation assumes the form of erysipelas, and rapidly passes into gangrene.

The Symptoms that mark asthenic inflammation are the foul, tark, and offensive lochial discharge: there is a certain amount of tenderness and soreness in the vulva and vagina, but not to the same degree as exists in phlegmonous inflammation. The typhoid irritative fever that attends the inflammation is very characteristic. The rapid pulse, dry furred tongue, burning surface, and sallow aspect, are the common characters of this lever, whether the cause be in the vagina or the uterus; but we have observed that, when the vagina is thus inflamed, pimples appear about the lips, and soon become pustules that form tark crusts; and thus, besides the usual sordes about the teeth and gums, the mouth is sometimes encircled by a chain of these butules in different degrees of maturity. When this inflammais the result of the direct absorption of some morbid poison, the accompanying fever is more distinctly that which we shall have again to describe as "puerperal fever," and must be considered separately; but there may be erysipelatous inflammation of the vagina without puerperal fever.

The Treatment of asthenic inflammation is the reverse of that of the sthenic form. The patient requires support throughout; bark, wine, and opium, are essentials; depletion and purgatives, at least such as act strongly on the intestines, should be avoided. Stimulants, also, are necessary; camphor, ammonia, and the others, may be given cautiously in the cases where there is a great depression of the vital powers. Quinine is at present the favourite mode of administering bark, and when it is selected it

may be given in wine; but in these cases we are inclined to back to the older preparations, to give the infusion of cinch in combination with the compound tincture of cinchona, to w you may add a neutral salt-the potassio-tartrate of soda instance-that will act mildly as an aperient. When the flammation is subdued, your cares are not concluded. sloughs that have taken place in the vagina are either detail or in process of separation: attention must, therefore, be give the manner in which the denuded surfaces heal. So los the slough is adherent, and the discharges dark-coloured offensive, antiseptic injections should be assiduously used; phorated spirit is sometimes selected, but the solutions of chlorate of soda, or chlorate of potash, are preferable. When slough is detached, equal care should be paid to the he surfaces, lest adhesions should take place that may be the fo ation of future mischief. It would be well to pass a small c drical speculum daily, as far as the os uteri, and touch abraded surfaces lightly with a solution of the nitrate of s (ten grains to the ounce): a solution of alum in the same pro tion may also be injected into the vagina three or four tim the day. The introduction of the speculum for this put must be made with great caution and gentleness; the surfa the vagina is, necessarily, extremely tender; portions of mucous membrane are destroyed, and hence this passage is easily injured. With proper care, however, the speculum safely be used, and it is essential to do so in order to pro unfavourable union taking place.

INFLAMMATION OF THE LINING MEMBRANE OF THE CAVIT THE CERVIX UTERI is generally of a chronic character, and be recognised by the appearance of a viscid mucous disch either mixed with the lochia or continuing on their decline may be the result of lacerations of the cervix uteri or o mucous membrane itself that lines the cavity.

The Symptoms are seldom so severe as to interfere much the patient's recovery. She is generally able to get up as about in the usual time, only she complains of a dull aching about the loins and over the sacrum, increased by the up position and by exercise, relieved by rest; she speaks also of a whitish substance (the collections of viscid mucus) passing from the vagina.

The Treatment cannot well be undertaken until the lochial sucharge has ceased, and this viscid mucus only remains. A solution of nitrate of silver may then be applied to the surface very fourth or sixth day, the bowels kept open by tonic saline perients, and the patient kept perfectly at rest. By such means be inflammation will gradually subside.

INFLAMMATION OF THE LINING MEMBRANE OF THE CAVITY OF THE UTERUS seldom occurs alone. Either the fibrous structure of the uterus becomes engaged, or the inflammation extends to the uterine veins. It may, therefore, be taken in connection with inflammation of either of these structures, the former producing phlegmonous or sthenic inflammation of the uterus; the latter phlebitis.

INFLAMMATION OF THE FIBROUS STRUCTURE OF THE UTERUS IS guerally the consequence of severe labour, especially if it be such protracted. It may also be the result of accidental causes; a sudden exposure to cold air, cold applications to the uterus, frect injury either from instruments or too rough manipulation.

The Symptoms generally appear when re-action takes place; that is, about forty-eight hours after delivery. The pulse continues frequent, about 100, and full. There is tenderness on pressure on either the left or the right inguinal region, more generally the left: the fundus uteri feels rather larger and firmer than usual. If it be slightly touched, the patient does not complain; but if firmly compressed, the pain is very great: the lochial discurge is suppressed, and the milk may not be secreted. If the inflammation be not subdued in the first instance, rigor, thirst, and other evidences of symptomatic fever will present themselves, and the danger to the patient will be increased, because such inflammation is seldom stationary: the neighbouring tissues soon become engaged, and when it extends to the peritoneum, the latture of the case is completely altered.

The Treatment should be prompt. If the slightest tenderness bould be felt in either inguinal region, accompanied by a quick



The success of this treatment depends entirely promptitude. The inflammation may be easily su the first slight tenderness is felt in the inguinal rethis stage pass unnoticed, or be misunderstood, the will rapidly extend itself to the peritoneum, or it ma subperitoneal tissue. It is not advisable to give ver gatives in this form of inflammation, lest the irri intestines should be communicated to the uterus, ar your object. It sometimes happens that the bowels the stimulus applied to them; a precautionary effor which, if it be misinterpreted, and should lead to the powerful cathartics, may do infinite mischief : a rhœa may be the result, accompanied by tenesmus, a of the inflammation in a more aggravated form. I reasons that warm emollient enemata, that act as are to be preferred while the inflammation is activ it is subsiding, mild aperients may be given with ad

INFLAMMATION OF THE PERITONEUM is generally a of inflammation of the uterus: metro-peritonitis is, most frequent form of inflammation that we med labour. It may be partial, confined to the immedial hood of the uterus; or general, and engage the whole The former will, however, rapidly merge into the la

seat of the inflammation is swollen and puffy, so as to render the outline of the uterus very undefined. The pulse is quick, wiry, and incompressible; the countenance anxious; the tongue rather dry, with a white fur in the centre, the edges and point red: there is great nausea, and sometimes vomiting. If the inflammation be not at once subdued, it very rapidly spreads over the whole abdomen, the swelling of which becomes general, accomranied by great tenderness over the surface; the pulse is still more contracted and wiry, and the countenance more expressive of intense suffering. Vomiting is now incessant; the inspirations are laboured, and any effort at inspiration is very distressing: hence the patient lies on her back, having the knees drawn up and the thorax raised, so as to prevent as much as possible the pain that inspirations produce: thus they are never completed, but are cut short by a rapid expiration, sometimes accompanied by cough. The bowels are constipated, and the skin is dry, with the exception of irregular partial sweats about the face and neck. These symptoms seldom continue beyond twelve or twenty-four hours, but, if the inflammation be not controlled, are succeeded by those of constitutional exhaustion. The abdomen becomes perfectly tympanitic, but sometimes loses its acute tenderness; the pulse is extremely rapid, 150 or 160, and feeble; the countenance is cadaverous; vomiting is no longer convulsive; greenish fluid is discharged from the stomach, with little or no effort; violent diarrhea sets in; the extremities are cold, and the surface is more or less covered with a greasy perspiration. Such symptoms soon close the scene.

The Treatment that is usually adopted is free depletion, followed by purgatives and mercury. We have great reason, however, to question the propriety of this practice carried to its full extent. The value of depletion is unquestionable; but mercury requires caution, and purgatives are positively injurious, because, by exciting the peristaltic action of the intestines, newly formed adhesions are disturbed, and the inflammation is renewed. Nature endeavours to guard against this, as you will find by the constipation that often resists even active purgatives, Mercury is useful as an antiphlogistic; but too often, as the inflammation

subsides, an exhausting and fatal diarrhosa succeeds, result of the irritation it produced. So long as the n tissue, the peritoneum, is actively inflamed, the mi brane is, as it were, unconscious of the injury ca remedy: but as soon as the peritonitis yields, the m brane feels its influence, and diarrhea follows. W more disposed to recommend the free use of opium. advantage of allaying the high degree of nervous iri is the necessary consequence of inflammation affec brane in such intimate relation with the vital organs. arrests the progress of the inflammation much I removal of this great disturbing cause than by an phlogistic effect. Opium is especially indicated i following rupture of the uterus; because there is a of constitutional shock mixed up with the inflamm this respect it is analogous to peritonitis from perfe intestine, rupture of the bladder, etc.

In idiopathic inflammation of the peritoneum necessary, but not to the same extent as in pur local depletion, for instance, timely applied, is mor than general depletion: twenty or thirty leeches coll point where tenderness is first observed, produce a effect than taking blood from the arm. Mercury r but with caution; the moment the gums become te constitutional effects are noticed, it should be wit not seek to salivate. Opium we would chiefly der may be given to any extent short of narcotism. twenty minims of Battley's sedative solution, taken hour, give great relief; you must, however, close effects on the patient. Purgatives must be altogetl they will not act when inflammation is active; a the bowels act of their own accord. Fomentati poultices, and such means, are generally applied to We prefer the vapour-bath, if it can be obtained apparatus that has been contrived for patients s Asiatic cholera would answer the purpose remarkat this means the temperature is equalised, and the pressure of poultices, etc., on the abdomen is avoide

The Pathological Appearances of inflammation of the perioneum are worthy of attention, because it appears to us of some importance that they should not be confounded with those morbid changes in the peritoneum which are the result of puerperal fever. We have had the opportunity of observing the peritoneum in different stages of inflammation, when patients died from ruptured uterus, six, twelve, twenty-four hours, and sometimes a week after the accident. The morbid appearances may be grouped into two classes, corresponding to the two stages of the inflammation. In the first group we find the peritoneum highly injected, the arterial capillaries traversing the intestines in red lines, surrounding them like bands; the cavity of the peritoneum filled with straw-coloured serum, sometimes rendered brown by admixture with blood; a glutinous lymph unites the intestines to each other, and the intestines to the uterus. If you separate these parts from each other, the lymph is drawn out into strings, like melted glue, or they may break off more like the slighter adhesion of thick mucilage. If blood be poured into the peritoneum, as in rupture of the uterus, a green tinge is often given to the surfaces with which the blood comes into contact. These appearances may be observed when death takes place within twenty-four hours after inflammation sets in; but if the struggle be more prolonged, the morbid alterations very much depend upon the immediate cause of death. The inflammation may give way, to a certain extent, to the strength of the constitution or to the treatment; but a violent diarrhoea carries off the patient. On the other hand, the constitution may yield to the inflammation, and the patient sink from exhaustion. The second group of appearances are not, therefore, always alike. In the former case the intestines are generally found strongly united to each other and to the uterus by lymph: they are not so highly injected, and the quantity of serum is less than in the first group. In the latter, the characters are more like those of puerperal fever. The intestines have rather a livid hue, from the injection of the venous capillaries; the serum is mixed with the peculiar creamy exudation that we call non-plastic lymph, which gives it a lactescent appearance; the intestines are often covered with the

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removed from the Fallopian tubes and ovaries which they enclose. A fine reticulate tissue is interposed everywhere between the peritoneum and this portion of the uterus and its appendages. It may be traced, although with difficulty, to the fundus, and forms part of that fine cellular tissue that accompanies the large wessels into the abdomen: it descends into the inguinal ring, ander the name of "fascia propria." The effect of inflammation on this structure is the rapid production of pus; which, if it be not circumscribed, or do not soon escape, will accumulate and form those extensive abscesses that are described by different writers. Thus a large abscess is found surrounding and oblisenting the ovary, or pus may be observed burrowing beneath the pelvic fascia, and again, it may take the line of the iliac vessels, and make its way into the abdomen along the psoas muscle: an abscess of this kind has sometimes been confounded with psoas abscess. Inflammation of this tissue may therefore be attended with very serious consequences, and, coming on insidiously after a previous inflammation that had been subdued, may blight the most flattering hopes of recovery.

The Symptoms that characterise it require a watchful attention, because they are frequently disguised by the more prominent symptoms of the antecedent inflammation. Thus it may happen That an attack of metritis seems to yield; the uterus is free from pain on pressure; the abdomen is soft; the patient complains only of inability to move, which she attributes to weakness Father than to pain; the pulse continues frequent; and a slight Figor may have taken place. If these symptoms pass unnoticed, the increasing weakness of the patient chiefly attracts attention: the rigors may return, followed by irregular perspiration; the Datient sleeps badly, and may complain of pain in passing her motions; sometimes a diarrhea sets in, under which she may sink. If the pus find its way to the surface, either in the groin, or the hip, or in the neighbourhood of the rectum, the case is colerably clear, because the local symptoms are so obvious. he abscess may burst into the vagina or rectum, and be thus charged: but if it take the course of the iliac vessels, and pass into the abdomen, the case is hopeless. Our most important,

ne equal of a vaginar committeeth we or maken a generally be found dis man in calls to be a the cul-de-soc of ward may be pressed forward, and p tern ramed uterus; or the superior wal with that he present down toward Tacting the space in the vagina. The p of pain is the more swollen parts of the polician simenmes detect at the most elements feel—the next step to fluct remarks early, the patient has a favou the symmetrical ite some extraneou in a market poisen, in operation to pres The Promose of this form of inflan at retarious possible, the formation of stated in this, to prevent at least its: ion are fribess be felt in the vagin tioning of the uterus, it is better at once the speculian, in the neighbourhood ament the privis carefully, both by for many and by warm injections into the

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ness: bark, wine, opium, and a more nutritious diet are essential. The pointing of the abscess into the vagina should be looked for; because, if the abscess gain an exit for its contents, the patient has a very favourable chance of recovery if a proper treatment be carefully pursued. The great danger of these cases is, that it may not do so, but pass into the abdomen.

INFLAMMATION OF THE UTERINE VEINS is occasionally met with after labour. It may be the consequence of severe labour; but the causes most likely to give rise to it are accidental. It sometimes follows violent floodings: the means used to arrest hæmorthage, the extreme refrigeration used, both externally and internally, afterwards excite violent reaction and inflammation of these veins. The absorption of putrid matter, such as the residue of a decomposed ovum, or the fragments of a putrid placenta, will also excite inflammation; but as this cause may be better classed with the absorption of morbid poisons generally, we prefer contidering it in connection with that subject.

The Symptoms of this form of inflammation are typhoid in character. A rigor occurs about the time when the milk should appear; no secretion takes place; the pulse is rapid and unsteady; the tongue dry; the countenance drawn, and rather sallow; the surface hot, without perspiration; the patient is watchful, and sometimes incoherent; the lochial discharge is very offensive. As the inflammation proceeds, rigors return at irregular intervals; the pulse increases in frequency; the tongue becomes furred; sordes form about the teeth; the countenance is more sallow and shrunken; the eye glassy; and the patient muttering in delirium; the whole surface is yellow and burning, presenting petechiæ; profuse sweats sometimes burst out upon it. The lochial discharge is dark and putrid, and portions of the mucous membrane of the vagina may separate in a state of slough. If the inflammation be not subdued, the patient sinks rapidly in two or three days from its commencement; but if it yield to treatment, it generally terminates by metastasis, that is, some distant part becomes inflamed as the uterine phlebitis subsides; and this inflammation is generally critical: thus the axilla, the leg, the groin, the buttock, may be the seat of inflammation that usually

om on the terminal service. The open through the terminal services The state of the same tan in the characters and the ಶಾ. . ಚಿಕ್ಕಾರ್ಡಿ ಮಾಡಿ<mark>ಕು ಬಿಚ್</mark>ಚು an a reason proged vide go en i - till til small billett er with a to to the marks. न्यम् । यो चान्यः अस्यक्षः वेद्यास्त्रीः योगस्यान् यो शक्तः वयक्षः संविक्तः ுகள் கொக்கிர்<del>க</del>ளிய သကားသုံးအသောသည်းများများပြုပြ a traine Left similar. The To the will be appropriate the in the contract of the contrac ಎರ್.ಎಲ್ನ - ೧೮ ಕ್ರೀಡಿ **ಚಿತ್ರಕ ಕ್ಷೇಕರಲ್ಲಿ** ಪ್ರ and the markets of the e ur dir iradiki te veik silti n teo zan re djesmi zan zie ra या विकास के कार्य में उपन्यक्त के स्त्रा o numbuo la surside, hand sionald di

## LECTURE XXXVII.

## PHLEGMASIA DOLENS.

Falegmasia alba dolens is the popular name given to a disease which occasionally appears after parturition. It received this tame because a leading feature of the complaint was a general welling of the leg, which became greatly enlarged, of an elastic bardness, and perfectly white; the swelling being preceded as well as accompanied by pain in a greater or less degree. The term may be translated "The white painful inflammation."

The disease may present itself at any time between the second and twentieth days after delivery. In some cases it has appeared tren at a later period.

SYMPTOMS .- These vary extremely. Sometimes they are so hild as to be marked only by a slight rigor, headache, quick pulse, perhaps nausea and sense of faintness. The limb then begins to swell, and assume its well-known characters; but without pain, unless the lymphatic glands or the veins be pressed. b other cases, there is more severe constitutional disturbance; the patient is irritable, with great thirst, furred tongue, rapid pulse, and complains of severe pains round the loins and down the thighs, often resembling cramp. The inguinal region soon becomes tumid, and the swelling rapidly extends down the limb; that in a day or two it is greatly enlarged, tense, shining, and elastic; the pain then diminishes, but the limb remains immovable and perfectly white. In some instances the swelling commences at the ankle or ham, and extends upwards. The pmphatic glands are extremely tender, and red lines of lymphatics hav be observed traversing the limb; the veins feel hard and notted like whip-cord, are tender when pressed upon, and roll from the finger. The temperature of the limb is also increased; and it is sometimes painfully hot. In these cases the secretion of milk and the lochia are generally arrested. The patient gets very little sleep; she spends a restless night, and is often bathed in a clammy perspiration.

This stage may last for ten days or a fortnight, when the constitutional disturbance gradually subsides, the pulse falls from 140 to 100, 90, etc., until it arrives at its natural standard; the tongue becomes clean; the milk may return, but this is not certain; the lochial discharge generally returns, being at first very offensive, but gradually assuming its natural characters. The swelling of the limb diminishes, so that it is no longer elastic but pits on pressure; the tenderness of the veins and lymphatics has disappeared; and the proper size of the limb is nearly restored, but not its power. The patient has but little control over it; she moves it with difficulty, and may remain lame for months, even for years, after the attack.

Some cases are even less fortunate; the disease may run a more rapid course. Irregular rigors, a rapid and unsteady pulse, perfect loss of rest, may indicate a highly irritative fever, which may terminate in death.

One limb (the left) is most usually engaged; sometimes the right. Occasionally both limbs are affected simultaneously; but more commonly the attack is transferred, as it were, from one to the other.

This disease is not usually fatal, but it too frequently leave traces of permanent disorganisation—a thickening of the cellular tissue, varicose veins, and incurable lameness. Suppuration mely occurs; but when it happens, it is generally in the fine reticular cellular tissue surrounding the veins, and takes the form of pelvic abscess.

CAUSES. The causes of this disease must be considered before its treatment. Formerly the profession could only speculate on the subject; but now, guided by pathological researches, they are arriving at the truth, but still slowly and with difficulty.

The earliest speculators held the doctrine of metastasis. Mauriceau supposed that phlegmasia dolens was owing to a reflux upon the lower extremities of certain matters, which should have been evacuated by the lochia. Puzos, Levret, and several others, held that the milk left the breasts and went to the limb, which was a "depôt du lait." The milk certainly left the breasts in the majority of instances; and the leg was immensely swollen and as white as milk; hence the very simple explanation which held its ground to a later period than we might suppose. Dr. Lee mentions a case in which a very celebrated London scoucheur, not many years ago, was so strongly impressed with the truth of this metastasis, that he ordered the infant to be kept to the breasts night and day, lest the milk should make its by to the thigh. (Lee, Diseases of Women, p. 148). The more scientific part of the profession, however, discarded this aplanation. In 1784, Mr. White, of Manchester, supposed that he disease depended upon obstruction or some morbid condition of the lymphatics. Mr. Frye, of Gloucester, supposed that they bere ruptured; Dr. Ferrier, that they were inflamed; and in 800, Dr. Hull, of Manchester, considering this doctrine inadetate to explain the facts, supposed that the blood-vessels were Iso engaged, and that the proximate cause of the disease conisted in an inflammatory affection, by which serum and lymph ere effused abundantly into the cellular tissues, thus producing swelled leg; and that "all the textures-muscles, cellular embrane, lymphatics, nerves, glands, blood-vessels-become ffected."

Such were the speculations on the subject; each suggestion ad some very near the truth—being adopted according as it ad suited the leading symptoms observed. Pathology was then ally in its infancy; no examination of morbid appearances was hade, or if made, not understood.

In 1817, the late Dr. Davis opened an inquiry into the subject. A patient of his died of phlegmasia dolens; he obtained the saistance of Mr. Lawrence, and made a most careful examination of the limb after death. Mr. Lawrence thus described the norbid appearances.

"The femoral veins from the ham upwards, the external iac, the common iliac veins as far as the junction of the latter

with the corresponding trunk of the right side, were and firmly plugged with what appeared a congulum of blod, The femoral portion of the vein, slightly thickened in its set, and of a deep red colour, was filled with a firm bloody coage adhering to the sides of the tube so that it could be drawn out, . . . The trunk of the profunds was distended in the same wy as that of the femoral veins; but the suphena and its branch were empty and healthy. The substance filling the external list and the common iliac portions of the vein was like the less congulum of an aneurismal anc-ex least with a very sig admixture of red particles: the tube was completely obstructed by this matter, more intimately connected to its surface than it the femoral vein, adhering indeed as firmly as the congulum dos to any part of an old aneurismal one; but in its centre there was a cavity containing about a tea-spoonful of thick fluid of the consistence of pus of a lightish brown tint and pultaceous appearance. The uterus, which contracted to the usual degree at such a distance of time from the delivery, its appendages and bloodvessels, and the vagina, were in a perfectly natural state. There was not the least appearance of vascular congestion about the organ, nor the slightest distension of any of its vessels, its whole substance was on the contrary pale, and the vessels everywhere contracted and empty." (Davis's Obstetric Medicine, p. 901).

We have detailed the substance of this report rather at length, because it embraces all the leading characters of the disease, and determines the time when its nature was first understood. Six years afterwards (May 1823), Dr. Davis brought forward a paper on the subject in the Medico-Chirurgical Society; and just previously M. Bouillaud related several cases and dissections in which the crural veins were obliterated (Annales de Médeine, Tome ii., January, 1823.) The inference from these dissections was that "the white leg" was the result of inflammation of the crural veins.

In 1829, Dr. R. Lee published a paper in the *Medico-Chirurgical Transactions*, to prove that the uterine veins were also concerned; and that the inflammation extended from them to the crural veins.

For some time the doctrine, that phlegmasia dolens was only a form of phlebitis, held its ground; but later researches have shaken, if not displaced it. Difficulties presented themselves which could not easily be explained. Inflammation affecting such leading veins as the crural and iliac, and producing such remarkable changes of structure, was attended by comparatively mild symptoms, very different from those which inflammation of the veins elsewhere is known to present. When death took place, it was preceded by the irritative fever of exhaustion rather than the typhoid fever of phlebitis. The course of this supposed inflammation was most irregular; one portion of a vein being nearly blocked up with coagula, the next being perfectly healthy, and the next portion again being in a similar condition to the first.

These doubts led to further and most interesting researches. Hasse, Virchow, and the German pathologists, laid the foundation for the inquiry. Mr. H. Lee, Dr. Tilbury Fox, and Dr. F. W. Mackenzie, followed it up. The German pathologists doubted this so-called phlebitis. Mr. Henry Lee has pointed out that the thickening in the coats of the vein, supposed to be the result of inflammation, is caused by the coagulation of the blood and the changes which it subsequently undergoes. He has proved that it is extremely difficult to excite inflammation in the lining membrane of a vein; and that if the blood be excluded it cannot be done. "An animal had some pus injected into its brachial vein, and was killed on the third day. The vitiated blood had at the time of the experiment been prevented lodging in the vessel by mechanical pressure in the course of the circulation. On examining the vein after death, its lining membrane was found of its natural, smooth, polished, and lubricated appearance" (Pathological and Surgical Observations, p. 95.) Again, in order to prove that the supposed analogy between the lining membrane of veins and serous surfaces does not exist so far as inflammation is concerned: "The left jugular vein of a donkey was exposed, and two ligatures placed upon it at an interval of something less than four inches. The vein was opened for about an inch near the centre of the exposed portion, and all the blood t contained carefully removed. The cavity of the vessel

... On slitting open the vein white colour occupied the cavit of this could be separated with membrane of the vein which polished, and lubricated appear Thus Mr. Henry Lee has pro a vein is extremely difficult to in this experiment the strongest su experiments to prove "how Gendrin and other French pe attributed the obstruction met w of lymph and the formation of p quent upon internal irritation." the veins in different instances, so of nitrate of silver, and of suly irritate the lining membrane. readmission of blood was preve obstruction had taken place. T

> formation of pus in the interior throughout either entirely empty vious." (Transactions of the Me pp. 216—217). Dr. Mackenz

rescular, covered with inflammatory lymph and adherent to the surrounding tissues.

"That such re-action and external inflammation may occur without giving rise to any corresponding inflammation of the lining membranes; for in these cases the latter was healthy, and the vein emsequently pervious or at least free from any inflammatory exudation or obstruction." (Op. cit. p. 216.)

Thus, then, it is clear, that the changes observed in the cavity of those large veins cannot be attributed to inflammation of the lining membrane, still less to inflammation of the uterine veins, which consist only of the lining membrane. Hence the propriety of naming this disease "phlebitis" may well be called in question. The cause of the appearances exists not in the vein but in the blood itself, which is proved to have a strictly conservative force. Dr. Mackenzie has shewn that, if the walls of a vein be injured (mechanically) and the blood be healthy, coagulation takes place; and conversely, if the walls be sound, but the blood hjured from pus or morbid matter, coagulation also occurs. This coagulation may be produced quite independently of the rein. The rapidity with which coagulation is caused by the dmixture of pus is well shewn by Mr. H. Lee. "Some blood vas drawn from a healthy horse and poured into three vessels apable of containing three ounces each. The blood in the first essel was allowed to remain as a standard of comparison. To hat in the second vessel was added some viscid matter from an ndolent tumour in the horse's neck; to that in the third, some as from a chronic abscess. The contents of the third vessel blood and pus) began to coagulate in three minutes, the mass was firm in four. In eight minutes the contents of the first and second vessel had become firm." (Op. cit. p. 119).

When coagulation in the vein is thus produced, the coagulum undergoes further changes. The blood has the power of separating from itself a fibro-albuminous element without the intervention of any membrane, and independently of any inflamed surface. Through this medium, the coagulum becomes adherent to the sides of the vein (as in the old aneurismal sac); and if it be attached to the whole circumference, the inner portions

become softened and broken down. "A complete cylinder of fibrine may in this way be formed in the interior of a vein through which (when the fluid portions of the coagulum are removed) the blood will circulate." (Lee, Op. cit. p. 101).

If the morbid matter escape in this manner, coagulation may again take place and the same process be repeated; but if it be retained, inflammation takes place, not in the vein but in the external tissues. Mr. H. Lee states "The surrounding areolar tissue will become inflamed, loaded first with serum, and then with lymph and pus, before the coats of the vein have taken on any similar action. The visible appearances of inflammation in either case extend to the lining membrane, not from it." (Op. cit. p. 100). Hasse, who believed the lining membrane of veins as irritable as serous surfaces, was still aware that it was slow to inflame; and he explains the surrounding inflammation on the principle of endosmose and exosmose. "The internal membrane of the veins," he says, "re-acts upon the application of irritant substances almost as quickly and intensely as the serous membranes. In this respect, doubtless, the vascular substratum plays the principal part; the lining membrane yielding merely to the alternations of endosmose and exosmose, and not suffering any organic change until a later period. In this respect, it will appear not unworthy of notice that those portions of the venous system which are composed exclusively of the internal membrane of veins with a very scanty provision of surrounding cellular tissue like the corpora spongiosa" (and uterine veins) "are very rarely and never extensively the seat of true inflammation." (Pathological Anatomy, p. 11).

A conclusive experiment on this part of our subject was performed by Dr. Mackenzie, who vitiated the blood with lactic acid in place of pus, "because it represents the principal constituent of an important animal excretion, and is also well known to be present in an excessive and abnormal proportion in many diseases; during the progress of which, phlegmasia dolens is known to supervene." Dr. Mackenzie ligatured the left femoral vein of a dog, and injected half-an-ounce of lactic acid (containing 15 per cent.) with an equal quantity of water into it towards the

heart. The animal breathed heavily, had frequent gulpings, efforts at vomiting, tenesmus convulsions, and died in half an hour.

"Dissection. The iliac veins of the left side, from the femoral up to the cava, and a considerable extent of the cava, were found obstructed by what appeared to be a firm coagulum; and on opening these vessels, this was found to be closely adherent to their lining membrane. After a short time, however, this apparent coagulum began to contract, and in doing so separated itself from the veins, exuding at the same time a serous fluid from its interior. This contraction proceeded until the coagulum which had previously filled the entire cavity of the veins, now becaused but a small tract of their interior. The coats of the veins which had been obstructed were perfectly healthy; no morbid redness, no vascularity or opacity was anywhere observable; and the lining membrane to which the coagulum had been adherent, was verfectly smooth, white, shining, and free from any trace of inflammation." (Op. cit., p. 220.)

So far, therefore, as the pathology of phlegmasia dolens is concerned, we cannot look upon it as inflammation of either the crural, line, or uterine veins, but rather as the result of blood-poisoning an different degrees. We have still, however, for our considertion, the facts that obstruction to the nervous circulation, simply and independently, will only cause edema in the limb, but not phlegmasia dolens.

Dr. Tilbury Fox has given his attention to this part of the subject, and in a valuable paper (Transactions of the Obstetrical Society, vol.ii.) has pointed out the important share which the lymphatics have in producing the effects observed. Assuming with Zimmerman and Virchow "that the lymphatics were the agents in attroducing fibrine into the general blood-currents," he proceeds o say: "If there be any relation between the lymphatic fibrine and the cellular tissue, it is easy to understand how obliteration of the lymphatics may give rise to the peculiar character of phlegmasia dolens, on account of the retention of the fibrinous material in the tissues, the cellular especially, which is so rich a lymphatics." (p. 207). "The cellular tissue itself seems

to be hypertrophied, the lymph also gelatinising in its inter-

Thus an obstruction in the lymphatic circulation will cause the lymphatic fibrine to accumulate in the cellular tissue and skin, giving it that elastic character and white aspect perfectly different from cedema.

That obstruction in the venous and lymphatic circulations will produce the white swelling called phlegmasia, without any inflammation, is proved by its occurrence in cancers and tuberele; and some tumours where the obstruction arises from external pressure, a slight contamination of the blood will produce the same effect. Dr. T. Fox relates a remarkable case in proof of this. "A lad aged 12 years was getting over a bank, and was bitten by an adder in the fleshy part of the thumb. He felt at once faint, and directly his arm began to swell. I [Dr. T. Fox] saw him soon afterwards. In so little time as twenty minutes after the receipt of the bite, the arm was appreciably swellen; there was no pain at any time. The next day, the case presented a perfect and complete specimen of phlegmasia dolens. There was not the least pyresia, no tenderness, no pain, no red lines running up the arm, nothing indicative of the least inflammatory action. The boy did well, although his arm was enormously swollen at one period" (Trans. Obstet. Soc., p. 211).

Thus we think it is proved, that the first effect of a poison on the circulation, is obstruction, both of lymph and blood; the latter causing ordema, the former the characteristic "white leg." The second effect, when the quantity is greater, is inflammation of the lymphatics directly, of the veins indirectly: that is to say, it is the tissues surrounding the veins which become inflamed, not the veins themselves. If the amount of morbid matter be further increased, the coagula are dissolved; the poison circulates; and diffuse inflammation may probably be the result—or puerperal fever.

Hence the disease may be strictly considered as the result of blood-poisoning; and, as diffuse inflammation now receives the name pyæmia, to indicate its cause, so this might be called "toxæmia," for the same reason. But the old term "phlegmasia dolens," is sufficiently expressive and avoids theory; we think it far preferable to "phlebitis." whether chronic or obstructive, which extrainly involves a discussion. We have endeavoured to place before you the facts which lead us to doubt the propriety of the erm; and have felt it our duty to do so, because in former ectures we had adopted it in common with the profession.

Treatment. We shall now consider the principles upon which he treatment must be conducted. We are not about to treat affarmmation, but to obviate the mischief of poisoned blood, or ather to assist Nature in doing so.

The course to pursue depends very much upon the degree to thich the blood is vitiated. A very active absorption is going after delivery; the uterus and vagina are rapidly contracting their size; the surface of the uterus where the placenta was ttached is covered by small coagula and by the debris of the lacenta, which may become decomposed; coagula may also emain in the vagina. These are generally thrown off safely, ut any cause which may stimulate absorption may prevent this. hus hemorrhage after labour has been frequently the cause of hlegmasia dolens; low diet, or any other cause of exhaustion, av do the same thing; and a small portion of morbid matter be taken up into the circulation, giving rise to phlegmasia a its mildest form. In such cases it is necessary to strengthen he constitution. Quinine, iron, soup, even wine, may be required: nd at the same time we should endeavour to remove, if possible, he poison by acting moderately on the bowels, but not so as to urge the patient. The limb should be bandaged carefully, and varm frictions used daily. This tonic treatment must be coninued throughout, and, in the course of a week or ten days, the welling will subside and the form of the limb be restored.

A more formidable case, however, may present itself, in which here may be inflammation of the lymphatics, preceded by severe teuralgic pains and great constitutional disturbance. In such cases, there is much more reason for anxiety; and a careful nquiry should be made as to the probable cause. Irritation of he surface of the uterus in removing an adherent placenta; the effects of a severe labour in exciting inflammation in the vagina

and uterus; a diet too stimulating, leading to a similar effect, have all been assigned as sufficient for the formation of pus on the surface of the vagina or uterus and its absorption. But we are inclined to hesitate in receiving this explanation of the effect, because cases of severe labour followed by inflammation without phlegmasia are so frequent, and cases of removed placenta so numerous, without any such result, that such an explanation must excite a doubt. On the other hand, phlegmasia dolens of this severe character has followed natural and easy labours, where there was no inflammation, and the placenta was safely expelled. We have therefore to look for causes beyond these; and we suspect that they will be found much more frequently among epidemic influences than is generally supposed. It is safe, however, to act upon that principle; and, in the case now before us, to secure a perfectly free ventilation in the apartment, to have the dress and bed clothes frequently changed, and to have a solution of chlorine sprinkled through the room. For the same reason, emetics promptly given, and followed by a full dose of calomel to act on the bowels and excite the flow of bile, may arrest the disease by removing the poison from the blood.

But if these remedies fail, we must seek to conquer the effect of the disease on the constitution. For this reason, tonics are essential: quinine, iron, the mineral acids, and ammonia, have all been given with advantage. Quinine and acids may be combined, and often are so; but we prefer the combination with an aperient. Quinine, compound colocynth pill, and extract of henbane—a grain of each—taken every third or even every second hour, will be found beneficial, not only in strengthening the constitution, but also in procuring healthy evacuations. The motions in these cases are generally very offensive; and an improvement in this respect is a most favourable symptom.

Dr. Mackenzie speaks favourably of hydrochloric acid, which he gives boldly. The plan he adopted "was to direct one ounce of dilute hydrochloric acid to be taken daily in a quart of barley or plain water sweetened with syrup of ginger, and flavoured with lemon peel." (Op. cit., p. 267). This practice was adopted as the best antiseptic to a poison which could not be removed.

The sesquicarbonate of ammonia, "in full, concentrated, and frequently repeated doses," given in a little fresh infusion of senna, is also recommended on the same principle.

In addition to these means of combating the constitutional effects of the poison, its local effects must not be lost sight of. The high degree of pain, the general nervous disturbance, as well as the lymphatic inflammation which actually exists, indicate depletion. But caution is necessary here. The removal of much blood increases absorption; and a large bleeding is not necessary to overcome such an inflammation as this. A few leeches to the lymphatic glands will generally be sufficient. These should be followed by an anodyne application; poppy fomentations may be employed with benefit, but sometimes the pain is so severe that they fail. A liniment of camphor and chloric æther will have more effect, and even turpentine may be used as a sedative: the counter-irritation produced is soon followed by the absence of pain. The nervous disturbance may be controlled also by morphia and chloric æther given in composing draughts.

If by these means, actively carried out, you succeed in arresting the disease; if you find the pulse to diminish in frequency. and the limb to pit on pressure, a bandage must be carefully applied from the foot up the whole limb; and when it is removed, friction must be carefully used before it is re-applied. By this means, the size of the leg will be reduced; but your patient may not be able to move. There may be paralysis of the limb; or perhaps pelvic abscess in process of formation. In the latter case, the pulse continues at a high standard (90 to 100); the patient has frequent perspiration, especially at night; and, as pus accumulates, she complains of a bearing-down pain, increased when she passes a motion; sometimes the same effect is produced in attempting to pass urine: this may even be retained, and perhaps, when the catheter is being passed, the cause may be for the first time discovered, the walls of the vagina being pressed prominently forward by an abscess. It is generally found in the cul-de-sac behind the cervix uteri, pushing it forward like a tumour; but it may pass down as far as the peritoneum will allow between the rectum and vagina, and between the

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the composite bleas to be the ordinary solution on posses is the powerful it di plants obtained the research presents behial discharge, and great prostration. The white swollen limb may exhibit some patch of dusky redness on its surface; or a deposition of pus may take place at some distant point. We thus perceive the effort to circumscribe the poison failing, and its circulation giving rise to symptoms resembling puerperal fever. Such cases may occur where no epidemic puerperal fever exists; but if it be present, cases of phlegmasia dolens seldom escape the poison, and will exhibit the symptoms of the fever along with the special character of the disease.

# LECTURE XXXVIII.

### PUERPERAL FEVER.

PUERPERAL FEVER is the next subject of our attention, and one surrounded with difficulties of no ordinary character. Whether we consider the opposite opinions that have been entertained respecting it; the contradictory experience of every distinguished practitioner; the frequency of its occurrence; or its frightful fatality, we must look upon puerperal fever as the most important and at the same time the most difficult question we have to discuss.

Puerperal fever, in the sense we understand it, is a disease of casual occurrence. It often appears quite unexpectedly, and disappears just as suddenly; its duration in any single case varies from two to five days, but it is sometimes more rapid, and, again, may be more protracted. It generally pursues a most destructive course, and is attended by a mortality that always excites the utmost alarm: the peritoneum is the tissue chiefly but not exclusively engaged. The causes that produce it; the manner of its progress; and its effect on the animal tissues, are all in obedience to the same laws that govern diseases which result from the absorption of morbid poisons—as typhus fever, crysipelas, Asiatic cholera, or plague.

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In 1776 this fever re-spreamed in Paris and Lyon 🕏

has shown median inferent epochs, and its returns had not frequent than ever; it reappeared in Paris moved to 1774. It has come to prevail more and not not not not see amountained." Tenon gives an account has see as a appeared in 1774; and from that period to

even out of every twelve women who were delivered were seized with the disease.

Such was the progress of this disease in Paris; at first reduring after long intervals, then more frequently, and ultimately ecoming an annual infliction. Its appalling fatality may be stimated from the fact that, while the average mortality in condon is about 1 in 150, and in Lying-in Hospitals varies from in 70 to 1 in 100, the mortality at the Hôtel Dieu and the faternité was 1 in 20, sometimes 1 in 13 (Rapport fait au conseil Général des Hospices), chiefly caused by puerperal fever. he mortality in the great Vienna Hospital, to which we shall gain refer, was as high as 1 in 10, and even 1 in 6 cases.

The first distinct epidemic in London seems to have been qually fatal. It appeared in 1760; but, in consequence of the bsence of any accurate records, it is impossible to say what as the exact mortality. Every effort was made to conceal the uth. "A gentleman," says Mr. White, "on whose veracity I in depend, informs me that he attended a small private lying-in ospital in London in the latter end of May, June, and the eginning of July, 1761, during which time puerperal fever was ery fatal there. That to the best of his recollection they lost bout twenty patients in the month of June. That during the onth he himself delivered six women in a short time in the ospital of natural births, and they all died. He was so shocked hat he desired the gentleman who had the care of the hospital deliver some who should next be in labour, which he did; ut they met with no better fate. They buried two women in one offin to conceal their loss." (White's Treatise, p. 165).

In 1768 it returned; when Denman's essay appeared, recomnending depletion on the first onset of the attack, and tartar metic to cause vomiting afterwards.

In 1770, the fever appeared in the Westminster (now the General) Lying-in Hospital, which had been erected in 1765. "Out of sixty-three women delivered, nineteen had the disease, and thirteen died." (Mackintosh's Essay, p. 4.) Dr. Leake, who was the attending physician, described the fever in his Diseases of Women, and considered that its cause was inflammation and gangrene of

the omentum. Dr. Hulme then presided over the City of London Hospital, and claimed to be the originator of this discovery. He published (1772) a very excellent essay, in which he gives an accurate account of puerperal fever as it then appeared, and the postmortem appearances observed. He generally found the omentum inflamed, and frequently black and gangrenous. Hence he considered inflammation of the kidneys and omentum to be the cause of the disease. But he was aware that he had to deal with a disease not exactly analogous to ordinary inflammation; that some change in the blood took place which totally altered its character. He therefore observes: "But the most capital point of all yet remains. I mean, to cut off the purulent fomes, the chief cause of the disease (as the dissections seem to indicate), and to restore the tainted omentum and intestines to somewhat of their perfect state." (Hulme's Treatise, p. 86). We learn from Dr. Joseph Clarke (Medical Commentaries, 382), that the mortality in the Westminster Hospital was about one in four cases; in the British Lying-in Hospital, one in 143. The cause of the great mortality in the former, now the General Lying-in Hospital, York Road, has been since discovered; and, by proper means to secure a perfect drainage and ventilation, the fever has almost disappeared.

In 1773, the fever showed itself in the lying-in ward of the Royal Infirmary of Edinburgh, of which Professor Young gives the following melancholy account: "It began about the end of February, when almost every woman, as soon as she was delivered, or perhaps about twenty-four hours after, was seized with it, and all of them died, though every method was used to cure the disorder."

In 1788, the fever appeared for the fourth time in the Dublia Lying-in Hospital since its institution (1757). "Seventeen were attacked and fourteen died." (Med. Comm. 1790). Since then, it has returned to that Institution at intervals varying from one to seven years.

With regard to London, Dr. John Clarke states: "In the years 1787 and 1788, the same year in which the disease seems to have been prevalent in Dublin, it was also exceedingly general bughout the whole of this country; but more especially in idea, and in hospitals, and made wonderful havoc among the ag-in patients." (Practical Essays, p. 110). Dr. Clarke found unite a different disease than any that he had been accustomed meet, and describes its first incursion in the following terms: he first case I met with was in the month of July, 1787, in ich I was astonished to observe the rapidity with which it ran course, and the very extraordinary manner in which women be destroyed by it." (Op. cit. p. 119).

n 1789 this malady visited Aberdeen, where it continued il 1792, and gave rise to an excellent treatise by Dr. Gordon, introduced a new, bold, and then a most successful practice. describes the fever as not being confined to the town of erdeen, but extending to the suburbs and contiguous country, re it proved as fatal as in the heart of the city. It was not uliar to any constitution or temperament, but promiscuously ed upon women of all constitutions and temperaments; for strong and the weak, the robust and the delicate, the old and young, the married and the single, those who had easy and se who had difficult labours, were all indiscriminately affected" ordon, Treatise, p. 2). "It prevailed," (he says) "principally ong the lower classes of women . . . but women in the higher Iks of life were not exempt when they happened to be delivered by aidwife or physician who had previously any patients labouring ler the disease" (p. 3). Dr. Gordon considered it as an inflamtion, but of the erysipelatous type. He advocated strongly a d and early depletion, taking twenty or twenty-four ounces at ce; and, if necessary, soon afterwards ten more. "When I k away," (he says) " only ten or twelve ounces of blood from patient, she always died; but when I had the courage to take ay twenty or twenty-four ounces at one bleeding in the beginng of the disease (i.e., within six or eight hours after the attack), patient never failed to recover. After the bleeding, it was my actice to bring on a diarrhea; which, when excited, I found cessary to continue through the whole course of the disease it was entirely conquered." (Op. cit. p. 77, 78, 80, 85). Between 1809 and 1812 puerperal fever visited Leeds and its

vicinity with great severity. Mr. Hey, son of the eminent surgeon, gives this account of it: "For some time after the commencement of this dreadful malady, it proved fatal in every case that came within my knowledge; and though a few patients afterwards recovered under the treatment which my father and I had formerly found successful in the puerperal fever, yet the success was very small, till the method hereafter described was fully adopted." (Hey's Treatise on Puerperal Fever, p. 2). Mr. Hey at once perceived the difference between this new disease and inflammation of the uterus or peritoneum. " He was alarmed by the extreme rapidity with which the disease ran its course and by its constant fatality, unlike anything which had ever been known in Leeds." In one case, the fever went through its course in eighteen hours. Mr. Hey's treatment first consisted of active purgatives, by which a diarrhœa was established. The first fourteen cases he details were treated in this way; but he saved only three of them. Dr. Gordon's practice of copious depletion was then tried, with even more boldness than its originator attempted. "When I was called at an early period, I seldom took away less than twenty-four ounces of blood at first, unless some peculiar delicacy of the constitution or an excess of the previous evacuations forbad it; and if the delay was protracted to eight or ten hours, or the symptoms were unusually severe, a large quantity to the extent of thirty or forty, and in one instance more than fifty ounces, in proportion to the urgency of the symptoms and loss of time. . . . If the pain and soreness of the abdomen are not removed or even materially alleviated in six hours, the bleeding ought to be repeated: nor should a considerable degree of faintness, nor even a deliquium, make us suppose that further bleeding is either unsafe or unnecessary" (p. 10). Mr. Hey thus describes the result of this practice: "I have now to add that after the ninth case (the fifteenth in my practice) in consequence of which I determined to use bleeding in addition to purging, of thirty-three patients of whom we attended, only three died; the last twenty-six recovered in uninterrupted succession" (pp. 160-168). Mr. Hey's work appeared in 1815.

Dr. Armstrong published his Facts and Observations in 1819. He describes the fever which occurred in Northumberland and Durham in 1813. This complaint generally set in about twenty-four or thirty hours, and seldom later than four days, after delivery. It did not seem to depend upon difficulty of labour, "for in most women in whom it occurred, parturition was remarkably easy, and the placenta was separated after a proper interval without any more than usual pain." The complaint, when not arrested, generally ran its course in a few days. "Soon after death, the bodies became rather livid and very offensive to the smell, and the abdomen immensely distended." No post mortem inspections were permitted; and consequently Dr. Armstrong had no opportunity of knowing what morbid changes took place.

"In all, forty-three cases occurred from January to October, 1813; when it ceased. After this number, forty were witnessed by Mr. Gregson and his assistant Mr. Gregory; the remainder having been separately seen by three accoucheurs" (p. 11), thus was proved the fact previously observed by Dr. Gordon, that this scourge selected particular accoucheurs as its introduction. It followed their practice with fatal strides. He remarks as a diagnostic symptom of this fever, the peculiarly offensive character of the evacuations, being "dark, slimy, foetid, and unexpectedly large. Indeed, excepting that they are commonly mixed with hard pieces of scybala, they have neither the ordinary smell, consistence, nor colour of natural feecal stools, but seem composed for the most part of some excrementitious matter, somewhat like dirty yellow paint, thrown out in a considerable quantity in the course of this disease" (p. 27).

Dr. Armstrong strongly confirms the observations of Clark, Gordon, and Hey, as to the rapidly fatal progress of the disease. "It is certain from indubitable facts, that it sometimes destroys as rapidly as plague itself." He found that a diarrhœa coming on in the first stage, sometimes carried off the disease; whereas, on the contrary, costiveness was always an unfavorable circumstance, increasing in no inconsiderable degree the difficulty of cure; on the contrary, a diarrhœa in the last stage was a most formidable

symptom. The treatment adopted by Dr. Armstrong was in principle the same as that of Gordon and Hey. His account of the first case in which it was tried is sufficient to explain it. "Twenty-four ounces of blood were immediately drawn from a large orifice, so as to induce fainting; one scruple of calomel in mucilage given immediately afterwards; and two ounces of strong infusion of senna, containing two drachms of sulphate of magnesia, ordered to be taken every hour, till copious evacuations were procured. The attendants were directed to allow the patient barley-water, acidulated with lemon-juice, for a common drink and diet, and to withhold the smallest portion of solid food or stimulating liquids. In about four hours the medicine began to operate, and several copious, dark, fætid stools were discharged. From that time considerable relief was obtained, and a regular perseverance in purgations, with mucilaginous drinks, and a small quantity of weak chicken broth, completed the cure in five days" (p. 92). Of forty-three cases in which this treatment was adopted, only five died.

As an exception to this plan, and to ordinary puerperal fever, Dr. Armstrong describes what he calls "a peculiar congestive disease, ushered in either by sensations of chilliness, or by paleness and oppression without such sensations; but in both cases the vital powers are so prostrate that no regular re-action takes place, as in common fevers: so that the surface remains cool throughout, or there are merely short, partial, and irregular flushes of heat. The shock in some instances is so great that the secretions are all suspended, and the patient sinks with rapidity" (pp. 182-183).

The post mortem appearances were equally exceptional with the symptoms. "In such cases dissection does not reveal, so far as my examinations have extended, any of the usual remains of inflammation, that is to say—there are no adhesions, no effusions of coagulable lymph, no formation of pus, no internal gangrene from arterial fulness; and the only morbid appearances have been an unusual accumulation of blood in some part of the venous system, without any of those vermilion tints of the capillary arteries, which denote the previous existence of inflammation" (p. 184).

It was just such a case as this that first directed Dr. Mackintosh's attention to puerperal fever. In 1808, a woman, the wife of a soldier in the Royal Artillery, was seized with the fever at Woolwich. "She shivered about eight hours after delivery, and continued to sink, having pain in the epigastrium and tumefaction of the abdomen, with diarrhea. Coldness over the whole surface of the body preceded her death, which followed in a few hours. On opening the abdomen, there was great tumefaction from flatus, the uterus was ill contracted, but it contained no coagula: and I [Dr. Mackintosh] may here remark that there had been no previous hamorrhage. There were two or three dark-coloured patches on the intestines, and the veins of the different viscera of the abdomen were so distended with blood, as to force the idea on our minds that the blood of the whole body was concentrated in them." (Mackintosh's Treatise, p. 34). Dr. Mackintosh published his Treatise in 1822, and so convinced was he that puerperal fever and peritonitis were the same thing, that even this case did not shake his belief. He endeavoured by a kind of lucus a non lucendo argument to demonstrate, that the absence of symptoms and morbid appearances was a proof of the intensity of the inflammation, so intense as to prostrate the powers of the constitution. On this principle, he advocated depletion and purgatives, where Armstrong would not venture, because he supposed that he was thus relieving the constitution of the weight of an intense inflammation. Dr. Mackintosh found a warm opponent in Dr. Hamilton; a controversy sprang up, and as in too many instances, a discussion commencing with argument finished in the personalities of a dispute.

From 1792 to 1822, a period of thirty years, the doctrines and practice of Gordon, Hey, Armstrong, and Mackintosh, more or less prevailed. They were opposed, it is true, by Hamilton and others; but the evidence of success was strongly in their favour, and their practice was generally adopted. Such was the state of opinion, when Dr. Gooch turned his attention to puerperal fever. He had the most ample opportunity for observation at the General Lying-in Hospital. He soon found he had to deal with a very fatal disease. When he saw the patients after it had

However, notwithstanding his st this practice, cases afterwards came his suspicions that at least there we and purging. Dr. Gooch was freque on cases where this practice failed; saw from the beginning to the end of difficulty. The patient was a lady whom previous confinements. Her labou quite well on the second evening, an took the usual dose of salts and senn was followed by diffuse pains and with rapid pulse. She could neither sure on the abdomen; but her skin hard. Dr. Gooch gave twenty m solution, to be repeated every two

hard. Dr. Gooch gave twenty m solution, to be repeated every two pain was easier, but the pulse was st a consultation to decide about blood-of medical opinion on the subject det It was carried to faintness, four cu Twelve leeches were next applied to succeeded by the usual fomentation

n the peritoneum after death, although during life, the whole surface of the abdomen had been painful and tender, and the pulse had been rapid as in puerperal fever. Death came on like faintness; the patient got weaker and weaker every hour and then died (p. 80). This case has certainly not the characters of true puerperal fever. The tenderness and swelling of the abdomen might be explained by the irritation of medicine which caused such violent purging: she might have been bled and purged to death without any fever existing. This seems to be probable, because Dr. Gooch quotes the experience of Dr. Dalrymple of Norwich, and of Mr. Hingeston, who record cases that were attended by pain and tenderness of the belly, with a rapid pulse. "The pain remitted; the skin was moist, and the pulse full and compressible. Most of them were cured by keeping the abdomen covered with a large, thin, hot linseed poultice, and giving ten grains of compound powder of ipecacuanha, repeated until the pain was gone. If the bowels were constipated, a purgative was previously given; if they were not so, the purgative was postponed till the pain was gone" (p. 82). It would have been desirable to know whether the usual dose of salts and senna had been given in the first instance, because these cases look much more like intestinal irritation than true puerperal fever; but still it possessed an epidemic character.

Dr. Gooch's paper met an able expositor in Dr. Ferguson, who published a most valuable essay on puerperal fever. He describes an epidemic attack similar to that of Dr. Gooch.

"In the year 1827, and part of 1828, this form of malady was very frequent, and I had repeated opportunities of pointing it out to the pupils of the General Hospital, with whom it obtained the name of 'false peritonitis'" (p. 11.) "In the epidemic winter of 1827 and 1828, this form was so prevalent along the banks of the Thames, that being worn out with incessant calls to visit the Patients at their own houses, I directed the matron of the hospital to send, in the first instance, to all complaining of abdominal Pain, two doses of Dover's powder, each containing ten grains, one to be taken immediately, the other in four hours; when, if notwithstanding the symptoms should persist, they were directed to

send for me. After this, I think I had no occasion to v in five of those afflicted, as they did not require any othe ment" (p. 16.) Puerperal fever cannot thus be cured such doses of Dover's powder. It is clear, therefore, the epidemic might be called "false puerperal fever." Dr. Fer valuable paper, however, first started the doctrine that w hereafter consider—that this fever is, strictly speaking, a disease. He embodied its causation in three proposition The phenomena of puerperal fever originate in a vitiation fluids. 2. The causes which are capable of vitiating the are particularly rife after childbirth. 3. The various for puerperal fever depend on this one cause, and may readeduced from it.

The treatment by depletion and purging received a che an opposite course was adopted. Dr. Copland was ap consulting physician to the Queen Charlotte's Hospital, in He describes in a letter to Dr. Ferguson the disease tha out there.

"The disease was malignant, and often ran its fatal con twenty-four hours from the first appearance of the sympto was characterised by remarkable rapidity, softness, and we of the pulse; by great pain, distension and tenderness through the abdomen: by a clammy offensive perspiration whole surface; by complete indifference to the child, result of the disease, and to everything else; by a moist, broad, mucous state of the tongue, and by relaxed bowels being secreted, and the lochia abundant, and sometimes of On dissection, copious serous or sero-albuminous or an sanious effusion was found in the peritoneal cavity-son also in the pleural and pericardial cavities. The tissue generally softened and easily lacerated; but the uterus pr in this form of the disease no other lesion than more softening, as observed in other abdominal organs, and ever heart itself." (Ferguson, p. 284).

The treatment ultimately adopted by Dr. Copland f malady was boldly stimulant. "Immediately upon the a ance of the symptoms of the malady, a bolus containing ight to sixteen grains of camphor, from ten to twenty grains of calomel, and from one to three of opium was given, and repeated in four, five, or six hours. The dose of camphor was very rarely less, and but seldom above that named, and the interval between the two doses sometimes only three hours, but never longer than six. The dose of opium in the second and subsequent boluses. was regulated according to the effect of the first. Soon after the second bolus were given, about half-an-ounce of spirits of turpentine and an equal quantity of castor oil was given on the surface of some aromatic water; and if these did not operate fully on the bowels within three hours, the same medicines in double and triple quantity were administered in enemata. The bolus just mentioned was still continued at the same intervals, or after five or six hours from the exhibition of the second or preceding one. Very soon afterwards, and generally subsequent to the administration of the turpentine draught and enema, a large piece of flannel folded several times and sufficient thus to cover the whole abdomen was directed to be wrung as dry as possible out of very hot water, to be instantly freely sprinkled with spirits of turpentine, and applied over the abdomen,-to be closely covered by wash leather or a dry cloth, and to be kept thus applied for some time, or renewed until erubescence of the surface of the abdomen was produced.

"The success of the above treatment in the malignant form I found to be almost complete for scarcely a case terminated fatally in which it was early resorted to" (p. 287).

Thus far we have spoken of puerperal fever as an essential disease varying in its character and most destructive in its results. We have now, however, to present a different view of this subject; we have to consider it not as an essential disease but symptomatic of some local inflammation. We can no longer speak of it as "peritoneal fever," but as fever symptomatic of peritonitis; a typhoid or a dynamic puerperal fever only indicates puerperal phlebitis.

Pathology, as we have stated, had been in its infancy. It was now arriving at maturity, and claimed the dignity of a science; and inasmuch as the true character of diseases of the heart, lungs,

He found the following results from

Alterations of the uterus and appendages
Ferri units
Combined lesions of the uterus and peritor
Ferritoneum alone affected
Uterus alone

Uterras alcine The term puerperal fever is discard which this disease presents are attri perminis, peritonitis, or uterine phlebi Thankle has been followed by Drs. I others who adopt his views. In this mo is must be borne in mind that, like s conclusion depends upon the perfect acc the facts; and that the slightest error argument may lead to a conclusion very certainty of pathology in determining discuses is beyond dispute; but, when it is escent poisons, to blood-diseases, the ligh clear. Broussais erred in this respect; whether Tonnelle has not made a similar This history is, we trust sufficient

Gordon, and Armstrong, to Gooch and Ferguson, has recognised disease quite different from ordinary puerperal attacks.

That it has varied extremely in its intensity; sometimes, like Armstrong's "congestive disease" and Mackintosh's "latent peritonitis," killing the patient in a few hours without leaving a single trace of inflammation; and again flitting along that seat for epidemics, the south bank of the Thames, so lightly, that it was arrested by a few doses of Dover's powder—this treatment being found sufficient to save the patient.

That cases of the disease, in every respect similar in character, have been saved by a treatment based upon the most opposite principles. It is only necessary to compare Hays' and Armstrong's practice of bleeding ad deliquium and purging, with Copland's use of camphor and turpentine, to demonstrate this.

These facts prove this disease to be something more than a local inflammation; and therefore we cannot help thinking that the terms "puerperal peritonitis" "puerperal phlebitis" etc., as applied to this disorder, are calculated to lead you away from a knowledge of its true character.

## LECTURE XXXIX.

### PUERPERAL FEVER (continued).

In tracing the history of the malignant disease that has been the object of our attention, some account of its symptoms and its effects upon the constitution has been unavoidable. A brief outline, also, of the treatment adopted by the different distinguished physicians who have given us their experience of it, has also been necessary: nevertheless, at the risk of repetition, we must enumerate more precisely the symptoms of this disease, and the morbid changes which it produces, in order to determine, if possible, what puerperal fever is, and especially to decide upon the principle on which we should conduct our treatment.

Hitherto we have spoken of puerperal fever in the singular number: and the term "fever" has been used in preference to "inflammation." In both respects we are conscious of assuming the truth of questions in dispute: we shall have to return to these propositions, and to discuss whether this disorder be one fever or many fevers, or, in fact, whether it be a fever at all; but at present, in order to define the disease we mean, we must describe to you its characteristics.

SYMPTOMS.—The symptoms of puerperal fever are observed to commence generally about forty-eight hours after delivery; sometimes they appear within twenty-four hours; and cases have been recorded in which they have been observed even before delivery. The manner in which it attacks the constitution varies exceedingly; but when the disorder takes sufficient time to develop its true characters, a rigor is first observed, sometimes only slight, more usually distinct and severe. This may or may not be followed by perspiration, but is always succeeded by a sense of oppression at the præcordia, and peculiar expressions of alarm, despondency and suffering, that unite in forming a very characteristic feature of the malady. Vomiting generally takes place, and what is discharged is often very offensive. The skin is dry and hot, but in more aggravated cases the surface, and especially the extremities, are cold; the pulse ranges from 120 to 140 beats; it may be wiry and resisting, but much more commonly is soft, small, and compressible. Simultaneously with, or subsequently to the rigor, pains in the abdomen are complained of; their seat is referred to the uterus or its neighbourhood, over which the patient cannot bear the least pressure: the uterus itself is often enlarged, and hence the reason why these pains have been so often confounded with after-pains, and much valuable time consequently lost. Sometimes, however, the pain commences in the epigastrium, and the patient experiences great distress from violent shooting spasms through the scrobiculus cordis and lower ribs. These pains are soon followed by a general distension of the abdomen, and a diffused tenderness over the surface, often so acute that the slightest pressure causes intolerable anguish; the patient cannot bear the weight of the

bed-clothes, nor can she respire without agony: breathing becomes, therefore, quick and short, each inspiration being interrupted by the epigastric pains, and maintaining no correspondence with the pulse; hence the patient seeks by position to relieve her distress - she lies on her back, the head and thorax raised on pillows, the legs drawn up, and the hands folded on the breast, feebly endeavouring to support the bed-clothes; a short cough frequently terminates the inspiration. A diarrhœa may occur at this stage, the evacuations being dark, frothy, and very offensive. This is rather a favourable indication than otherwise. The tongue is usually moist, having a curdy whiteness in the centre, or a yellowish fur-like cream; a red line may sometimes be observed running down the centre, but is often absent: there is generally great thirst, but the drink is often thrown back as it is swallowed. The patient may complain of headache, having a dull pain over the eyebrows; but the intellect is clear, and she is very observant of your countenance and movements in investigating her symptoms. The countenance is pallid, having a slight lividity around the sunken eyes and angles of the mouth; occasionally a hectic flush, or a more defined crimson patch will appear. We have not observed much alteration in the lochial discharge; in some instances it was suppressed at first, and returned again; in others, it continued as before. The secretion of milk is usually arrested, although there are many exceptions. These symptoms mark the first stage of the disease; they are the evidences of the struggle of the constitution to resist the attack; they may continue twenty-four or fortyeight hours, when they are succeeded by those that proclaim defeat.

The symptoms that indicate the failure of the powers of life to continue the contest form the second stage. The surface and extremities become cold; the countenance more livid; the tongue perhaps clean; the pulse 160, small and feeble, but sometimes full, soft, and very compressible. The tenderness and tension of the abdomen diminish, and in some instances are quite removed; vomiting takes place without effort, a green stream often flowing from the mouth; and there may be diarrhoa of a similar

character. The intellect remains clear to the last; and the relief which the patient experiences from her previous sufferings, which she naturally attributes to the treatment, often excites a belief in her safety when she is actually within the grasp of death. A clammy and offensive perspiration bursts out, partially on the surface; respiration becomes gradually less hurried; and death closes the scene.

Such are the characteristics of the fever as it has come under our own notice; and the description agrees with that given by Hulme, Leake, J. Clarke, Armstrong, Mackintosh, Lee, and Copland. We may fairly assume, therefore, that all are speaking of one and the same disease—one which the majority of these writers confess to be different from the puerperal affections which they were in the habit of observing.

There are many causes which modify the intensity of the disorder. The power of the constitution to resist the attack varies; but, independently of other causes, the time when the patient is seized seems to exert an important influence. As far as our observation has given us the opportunity of forming an opinion, the first incursion of the fever seems to be the most violent: its intensity is then at its maximum, and diminishes with its progress. The patients who were first attacked presented comparatively few symptoms of the first stage; they merged at once into the stage of depression: while those affected at a later period exhibited the symptoms of the first stage only, and in a milder form. Thus two classes of cases were observed, deviating from that described into opposite extremes. The one class presented symptoms of collapse throughout: the countenance was pallid and almost livid; the eye dull and glassy; the surface cold; the tongue clean, moist, and cooler than usual; the abdomen either tympanitic or only tumid, and in either case generally free from pain; the pulse was very rapid, 150, 160, 180, but in one instance it was as low as 90; respiration was oppressed and hurried from the commencement of the attack, which usually began with twitches in the side and epigastrium; vomiting and diarrhœa sometimes took place, but the contents of the stomach and intestines were discharged without effort: a clammy offensive sweat broke out partially over the surface; and the patient sank in twenty-four, thirty-six, or forty-eight hours. These cases are analogous to Armstrong's "congestive disease," to Mackintosh's "intense peritonitis;" and presented characters which impressed Dr. Collins and ourself strongly with its resemblance to Asiatic cholera. The other class exhibited symptoms which the history of a single case will sufficiently illustrate.

A small delicate-looking woman was delivered in the Dublin Lying-in Hospital of her second child, after two hours' labour. She was in the ward first attacked by the fever, in which two women had just been seized, and both died within forty-eight hours. She had the usual rigor, followed by pains shooting through the sides and back into the abdomen; there was some inclination to vomit; the bowels were free; the abdomen was tumid rather than tympanitic; the lochia natural; the countenance was slightly sharpened: the tongue moist and white: the pulse 104, rather soft. Two dozen leeches were applied to the abdomen, followed by the warm bath; and calomel with ipecacuanha, two grains each, were given every second hour. A profuse diaphoresis broke out during the day, followed by a diarrhoa, which continued during the night, several green and frothy evacuations having passed. The next day, the tenderness of the abdomen was removed; the gums became spongy; the pulse 100. On the following night she was again bathed in a copious perspiration during her sleep, which was not disturbed. From this time the symptoms gradually disappeared, and she was dismissed well in about three weeks.

In point of time, this case is an exception to the observation we have made, as it occurred when the fever first appeared, and was committing its ravages to a fearful extent; but as an exception it rather proves the rule, because at this period it stood alone amid a vast preponderance of fatal cases: as time passed on, such examples were more frequent, and became numerous towards the conclusion of the epidemic. These latter cases also presented another remarkable difference from those first attacked; the symptoms in both were, or at least appeared to be, equally intense, but the early cases generally died, while those occurring later, although apparently similar, often recovered. We can only consi-

The protocold erysipelas a stan aregually, and are full severe the pulse varies from 1 wirmang: the tongue is covered grows live in the centre, and, as briwn: the gums are covered wit and vell, w; the countenance shru sice perfectly listless; the abdon soft and not distended; in other slight pressure over the uterus. pain also shifts its position. Agr shiomen becomes suddenly diste sometimes takes place; diarrhoza discharge may be suppressed, but is not secreted. The patient b delimum follows-violent, perha into a low muttering. She lie through the voluntary muscles, : In the progress of these syn quently takes place, having its s in the cellular tissue of the orbit infammation, with extensive su

as distinguishing it from that which we have previously described. The muttering delirium and subsultus tendinum observed here are not present in true puerperal fever: the frequent absence of abdominal pain in erysipelas, and its fluctuating character when present, are also worthy of attention.

We shall not now stop to inquire whether erysipelas, as it thus manifests itself, and puerperal fever, are one and the same disease. We prefer, for the present, that you should consider them distinct disorders: but, as a connecting link between them, and in order to trace their relationship, we shall direct your attention to that form of attack described by Drs. Gooch and Ferguson-the second variety of peritoneal fever of Gooch, a variety of the first form of puerperal fever of Ferguson-one in which the abdominal pain is transient, as contrasted with that where it is permanent. "Of two patients attacked by abdominal pain," says Dr. Ferguson, "it will, in the majority of cases and at the commencement of an epidemic, be very difficult to ascertain which is the slighter, which the severer malady. In both, the intensity of anguish-the seat of pain included between the pubes and a line drawn from the superior crest of one ilium to that of the otherthe precursory rigor, followed by the hot fit - the time of attack, from the first to the fifth day after parturition-are all the same. and neither the pulse nor the degree of fever distinguishes the one from the other. The action of remedies, however, shows their distinctive characters: the transitory form being readily relieved by such agents as lull pain; while the other requires such as are used to quell pure inflammatory action. The transient abdominal pain passes into the second or permanent kind; but in some epidemics it forms the principal character of the common malady, and I have never seen one in which some of these did not occur" (Essays, p. 11). Dr. Gooch details cases in every respect similar, exhibiting intense pain of the abdomen, which was quite tympanitic, a rapid pulse, hurried breathing, some vomiting, and great anxiety. They were relieved by opium and fomentations, but injured by depletion and purgatives: and in them, after death, the peritoneum was found quite natural, without serous or sero-purulent effusion, without adhesion or any of the usual indications of inflammation. Is this erysipelas of the

peritoneum, the traces of inflammation disappearing after death just as the blush of erysipelas leaves the integument? or is it erysipelas of the mucous surface of the intestines, causing flatulent distension of the abdomen, and the distressing anguish of colic? If treatment be a test of the character of a disorder—and we think it a good one—the treatment recommended by Gooch and Ferguson for this affection is that which is the best suited for erysipelas, and most assuredly one that is quite unavailing in the disease which we have described as puerperal fever. The post mortem appearances also indicate an essential difference, to which we shall have again to refer.

EFFECTS OF PUERPERAL FEVER IN MODIFYING OTHER DISEASES.—
The presence of an epidemic aggravates every form of disease that comes within the sphere of its influence, however remote that affection may be from the essential characters of the epidemic itself. When typhus fever is present, every form of fever assumes a typhoid character. When cholera made its appearance, every irritation of the intestines was disguised by symptoms resembling cholera; and thus we find that the presence of puerperal fever aggravates considerably the danger of affections which, if it be absent, are seldom fatal, just as the presence of erysipelas gives an unhealthy aspect to the most trifling inflammation or the slightest sore. Such seems to us to be the effect of puerperal fever on some disorders that are met with, which at other times are usually curable.

One of these is the Gastro-intestinal Fever already briefly alluded to. When a case of gastro-intestinal fever occurs in the epidemic season, it presents very different characters from those which are usually observed: it assumes a typhoid form, and, although more within the reach of treatment, it is sometimes as dangerous as puerperal fever itself. This disease lasts from a week to fourteen or to twenty-one days: the prevailing constitutional symptoms are of a typhoid type. The symptoms commence with a rigor, followed by a transient peritoneal tenderness that seldom lasts, and is always easily removed by moderate local depletion; the pulse is quick; the tongue is furred in the centre, and red at the margins and tip, and it afterwards grows dry and

brown, as in typhus. The skin is dry, hot, and of a dirty sallow colour. There is generally nausea; sometimes vomiting; and always diarrhea, which is excited by the least irritating substances. The evacuations are exceedingly offensive, and dark-coloured. There is great irritability, and occasionally slight delirium, with considerable prostration and tremors through the limbs. The patient gets little rest, being disturbed by hallucinations. This fever, when fatal, generally, merges into typhus; but its more usual course is to assume a remittent form, the exacerbations coming on generally in the evening. It is this disease which has been described by Dr. Butter (1775) as "the remittent form of puerperal fever," and is Dr. Ferguson's "second form of puerperal fever, with gastro-enteric irritation."

Puerperal Mania is another disorder that may be similarly modified. On the same day that a case of typhus fever was admitted into the Dublin Lying-in Hospital, and about ten days before puerperal fever broke out, a case of puerperal mania occurred which presented the following symptoms. On the fourth day after her labour, which occupied about fifteen hours, nothing unusual taking place, the patient was observed to be extremely nervous and irritable. She complained of no local pain, but was seized in the course of the day, with dyspnœa, accompanied with a severe pain in her chest. The pulse was 120. She was bled, and given tartar emetic. The blood was not buffed; vomiting was very easily excited; a fetid enema readily acted on the bowels, which discharged a large quantity of flatus. The following night she slept well; in the morning she complained of some pain at the epigastrium, and was restless. The restlessness increased during the day, so that she constantly tossed herself about the bed, and was with difficulty prevented from getting up. That night she had no sleep, became quite delirious, but still, when asked a question, answered collectedly. The pulse rose to 160; respiration became quick and irregular, the cheeks being occasionally puffed out; the evacuations from the bowels were more frequent, dark, and offensive, of the consistence of gruel. She had also some vomiting. Tenderness of the abdomen was now first perceived, and in the evening this part became

suddenly quite distended. From this time the change was remarkable. The extremities were cold and clammy; the face was collapsed, covered with a greasy perspiration; the pulse was almost indistinct; delirium still continued; she was more restless, constantly talking, and making feeble efforts to leave her bed; vomiting returned, what was ejected being quite grumous and offensive. After this she gradually sank, and died on the third day, about sixty hours from the commencement of the attack. The post mortem inspection shewed in the abdomen the usual sero-purulent effusion of puerperal fever; but there was also great congestion of the vessels of the brain, and some effusion into the arachnoid, which was in some parts of a pearly whiteness.

This case, therefore, admitted of two interpretations. It was either a case of puerperal fever, the arachnoid being first engaged, the peritoneum subsequently; or it was a case of puerperal mania, modified and rendered fatal in consequence of the epidemic that was then approaching. We are inclined to adopt the latter

because the attack of puerperal fever did not commence until ten days afterwards, and during its progress no similar case was observed, which would be very unlikely if this first case were to be considered an example of that epidemic. In its characters it bears a close analogy to Dr. Ferguson's "third or nervous form of puerperal fever,"-a form that he admits is "by far the most rare of all the various kinds of puerperal fever. . . . . Those" (says Dr. Ferguson) "in whom the nervous character is the sole, or at least the most prominent part of puerperal fever. exhibit all its symptoms in all its irregularity and inconstancy. There is painful and sudden abdominal tenderness, which subsides with extreme rapidity. There are a rapid pulse, great restlessness, and mental uncertainty and agitation, together with shifting functional disturbances of various organs; sighing, tremors, cramps, sudden and death-like sinking, and as sudden re-appearance of strength. With these there are, nevertheless, from the beginning of the attack, unequivocal marks of deep injury to the nervous system. The faculties and feelings are strangely disturbed, and the terror which the patient expresses, or the furious delirium which often ushers in the attack, soon gives way to fatal coma, or to sudden syncope," (Essays, pp. 25-26).

Phlegmasia Dolens is also a disease greatly modified and rendered much more fatal by puerperal fever. We have stated to you that it is not generally a fatal disease. It sometimes happens, however, that the effort to circumscribe the poison fails; it circulates with the blood, and a fatal phlegmasia is the result. This may happen when no puerperal fever exists; but is sure to occur if that disease be present.

In the previous detail of symptoms, we have not adopted any of the divisions of puerperal fever usually made; our object has been rather to bring before your attention that disease which the great majority of writers agree in calling puerperal fever; in the description of which the earliest and the latest observers perfectly coincide. The intensity of the disease varies in its degree; but in every material point its character is uniform; so far, therefore, we are speaking of one essential disorder. When it is present, however, other diseases are found to accompany it, which are often, we might say generally, classed as forms or varieties of puerperal fever. In such a sense the disease is not uniform, and in this sense we have spoken of its protean character; but we would wish you, in our inquiry into its nature, to separate in your mind the malady itself from its companions. Thus we have erysipelas appearing so constantly together with it-in the same place, at the same time, and under the same circumstances-as to create a doubt whether they are not one and the same disease; an opinion that is greatly strengthened by the fact, that each will reciprocally communicate the other disorder. Then, those affections which we have just named as being modified by puerperal fever, assume many of its characters, and bear a strong resemblance to it. These, however, must be distinguished from puerperal fever, such as we have described it; and for this purpose we prefer a different classification from those more usually adopted. We would propose to you a three-fold divisions: First, that which may be considered par excellence the Puerperal Disease or Fever; secondly, Erysipelas; and thirdly,



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In their most than present procession in terms attended to perform a making the performance of their reports of the making their means of the making their means for their means of their

It is that series of cases of paas their very alternately with a memory special are found on the is many army their margin; the follsames, and manufactures. the peritoneum. When this pus is wiped away, the lining membrane of the vein is pale and smooth. The substance of the uterus may be infiltrated with this kind of pus. In one case, a section of the uterus resembled the section of a phthisical lung. The ovaries are generally softened, surrounded with pus, and sometimes obliterated. The tissue of the peritoneum is also softened, and separates easily from the intestines or uterus. This condition was particularly remarkable in Drs. Leake's and Hulme's cases: the omentum was pultaceous, dark, and putrid-looking—in appearance that led them to believe it was the cause of the lisease. The intestines are usually distended with gas; but they may be unchanged in this respect. Such are the appearances presented in cases of extreme severity, where there is little or no pain, great prostration, and no symptom that could be described as inflammatory.

In other cases, where the symptoms are more progressive, and the constitution has a certain power of resistance, the morbid appearances are of a more inflammatory character. Adhesive lymph is mixed up and confounded with that which we have described; the surface of the intestine is rough when the lymph is removed from it, and the intestines, the uterus, and the omentum, are often united with tolerable firmness. In both varieties, the intestines are encircled by lines of injected capillaries. In the former class of cases the colour is a dark-red or violet hue : in these it is more florid. The uterus is generally increased in tolume; the lining membrane is thickened, softened, and easily mraped off: its surface has a mottled appearance, partly dark red, partly green. The veins, especially in the neighbourhood of the broad ligaments, are usually filled with pus; and when so, it seems to be deposited there, because the vein itself presents no other evidence of inflammation.

These are the leading morbid products of puerperal fever, from which you will perceive that its effect on the tissues varies with the intensity of the disease. When it is at a maximum, no alteration beyond venous congestion is observed. When it is still great, but less in degree, an abundant effusion of serum takes place, and layers of dusky lymph are formed on the intestines;

but this lymph possesses none of the properties of that which is produced by inflammation; it resembles more the fibrine of the blood deposited in a lymph-like layer upon the intestine. In other cases of the same kind, this lymph or fibrine has a purulent aspect; it is yellow, creamy, and, when dissolved, resembles pus; if mixed with serum, it has a lactescent appearance—the sero-purulent fluid of authors. This deposit is not confined to the peritoneum, but is found also in the pleura, and even in the lining membrane of the uterine veins.

When the constitution struggles against the incursions made upon it, we find, combined with the appearances just described, evidences of inflammation both in the peritoneum and in the uterus: some adhesive lympth is thrown out, which unites the different parts together. Another remarkable feature in the pathology of this disease, is the tendency that exists to softening of the tissues: the peritoneum, the uterus, the liver, the ovaries, are all more or less softened; the ovaries sometimes seem dissolved, the spleen and liver are quite friable; in fact, scarcely any of the tissues escape this destructive process.

Erysipelas produces a different series of morbid appearances. The cellular structure, the veins, the mucous membranes, are chiefly affected; abundant deposits of pus are met with, and the softening of the tissues amounts to putrescency. Pus of a more decided character is found, not only in the veins, but in the substance of the uterus, where small abscesses are formed. It is observed also in the hypogastric veins and absorbents; in the ovaries, forming large abscesses; in the liver, in the spleen, abundantly in the lungs; and we have seen an abscess even in the substance of the heart. It is found in the intermuscular cellular structure, and especially around the joints. The loose cellular tissue at the back of the orbit is often its seat; and large abscesses are frequently observed in the fine reticular fissue between the peritoneum and the uterus. The mucous membrane of the vagina may be in a state of slough, and that lining the uterus covered with a putrid sanies: the substance of the uterus is partially softened, black, and friable, and the odour extremely offensive. Such are the effects of erysipelas; but along with

these the appearances of puerperal fever are so combined, as to confuse us greatly in our attempts to separate one disease from the other. In some cases sero-purulent fluid and lymph are found in the peritoneum; the intestines are distended with flatus, and streaked with lines of injected capillaries. The true characters of each may, however, be recognised in less complicated cases; and then we find in puerperal fever that the chief morbid changes are in the serous membrane; while in erysipelas the mucous surfaces, the veins, and cellular tissue, are principally engaged. The peritoneal fever of Gooch was remarkable for the absence of any morbid alteration in the peritoneum, notwithstanding that all the symptoms pointed to it as the seat of the disease: hence the question arose, Could this be erysipelas in a serous membrane presenting itself in a new form, but preserving its evanescent character?

In gastro-enteric fever, mania, and phlegmasia dolens, the morbid changes in each are characteristic of the disease, but are in a similar manner mixed up with the appearances of puerperal fever.

Such is a brief outline of the pathological anatomy of this disorder.

### LECTURE XL.

## PUERPERAL FEVER (continued).

NATURE OF PUERPERAL FEVER.—What, then, is puerperal fever? Is it a common term, applied to the various forms of inflammation met with in the puerperal state—to peritonitis, phlebitis, metritis, etc.? Or is it an essential disease distinct from these? These questions are very important, because on the truth or falsehood of the answers given to them, depends the leading principle which must govern our treatment. In order, then, to arrive at some conclusion respecting the nature of puerperal fever, and to free the question from many of the complications that surround it, let us first, by a process of negation, determine

tainty with regard to this important question.

PUERPERAL FEVER NOT PERITONITIS .- We hold the fever and puerperal peritonitis are distinct diseases; the exist in the absence of the other; and that, althou mation of the peritoneum most frequently forms disease which we name puerperal fever, this special in stands to it in the relation of an effect to its cause. fever differs from peritonitis in the mode of its at symptoms, in its morbid appearances, and we th treatment. Whenever inflammation takes place in the it is always traceable to some obvious cause. A protracted labour is followed by inflammation of which extends to the peritoneum. The extreme used to check hæmorrhage may be followed by per the patient be exposed to sudden draughts of cold air, heated and has improper food, these also become exci and inflammation of the peritoneum may be the r when there is no such obvious cause-when a pati most favourable delivery, and notwithstanding the mo management, is seized with symptoms of peritonit unexplained attack, quite contrary to our ordinary affords a just ground for suspecting that the disease wl

nptoms. In ordinary cases, inflammation of the peritoneum es some days in its progress before it arrives at a fatal ation; in this instance the patient may be at once prosby the attack, and death take place within twenty-four

The symptoms of peritonitis may be present, but they lose of the second stage—the stage of collapse. The matory symptoms, or those of the first stage, are absent, hey had not time to develope themselves because of the ty of the seizure. Hence then, an inflammation that on, as it were, of its own accord, without any provocation, ins an unusually rapid and fatal course, cannot be con-I an ordinary inflammation. The manner of its approach strates that it has a special character; and thus far we ssert, that the peritonitis of puerperal fever and puerperal nitis are not the same inflammations. But we may have eral fever without a single symptom of peritonitis, without e morbid change in the peritoneum: that is, the patient e seized with a rigor, with some tenderness in the uterus the abdomen, and before the commencing inflammation es manifest, she may sink into a state of collapse-the ness may disappear, and after death the peritoneum may ad pale and unaltered. Such has been observed in the orst cases of the disease, the nature of which we are now ing; and they afford incontrovertible evidence that inflamof the peritoneum, or indeed of any other structure, is essential element of puerperal fever. The late Dr. Mackingeniously argued that these cases were only peritonitis nost intense form, accompanied by extreme congestion in ious circulation; that the oppression on the nervous system great as to destroy all sensation of pain-all activity of n; that consequently, there was no tenderness-no -none of the ordinary evidences of peritonitis. Hence sted upon the importance of free and bold depletion to this condition, and argued that, when the oppression was d, the latent inflammation would become manifest. The ng was ingenious; but the practical test of its truthon-proved its fallacy. Loss of blood was found only to

hasten a fatal termination; and every writer of any authority cautions his reader against depletion in these cases. Even Dr. Armstrong, the warmest advocate of the lancet, and who names this "the congestive disease," speaks with great hesitation about bleeding. He compares a case of this kind to surgical cases "when the nervous system has sustained some great shock from an accident. The skin becomes universally cold, the blood retires from the surface into the interior, and the heart's action is extremely oppressed. Under such a state of things, it is an admitted principle in surgery not to bleed immediately; and indeed, when it is done, death is often the consequence" (Armstrong, p. 187).

Distinction in Symptoms. The symptoms of peritonitis, and of puerperal fever accompanied by inflammation of the peritoneum, do not precisely correspond. They agree in the diffused pain and general distension of the abdomen; the stomach is equally irritable in both cases; the patient is watchful and anxious. But they differ in many respects. For instance, in peritonitis, the bowels are constipated often to such a degree as to resist the strongest purgatives: in puerperal fever, diarrhos may be one of the first symptoms that usher in the abdominal tenderness. The pain in peritonitis generally commences in the neighbourhood of the uterus, and takes a certain time to diffuse itself over the abdomen: in puerperal fever, the pain frequently commences in the neighbourhood of the diaphragm, shooting through the ribs and epigastrium in violent stitches, and then spreads over the abdomen. The pulse in peritonitis is inflammatory, increasing with the inflammation, subsiding as it is subdued: in puerperal fever the pulse is febrile, observing periods of increase and decrease independent of local symptoms: nay, when these have disappeared under the influence of treatment, the pulse may still remain at its former rate quite unaltered. This fact deserves particular attention; because it proves that the pulse, and not the local symptoms, is the surest evidence of the state of the patient. The countenance is not exactly the same in each case. In peritonitis, anxiety and suffering are chiefly expressed: in puerperal fever despondency is combined with them, and that is not easily described. Headache is not generally observed in peritonitis, although a frequent symptom of puerperal fever. Thus the symptoms, which in both diseases seem to resemble each other, will be found, on a closer examination, not to agree, but to present sufficient points of difference to distinguish one from the other. If you require a diagnostic symptom, we should direct your attention to the influence of inflammation on the intestines. Pure inflammation of the peritoneum at once suspends their action, and produces constipation; that inflammation which belongs to puerperal fever has no such effect—on the contrary, diarrhoea is often one of its earliest symptoms.

Distinction in Morbid Appearances. In peritonitis, all the arterial capillaries are highly injected, hence the intestines are streaked with bright red lines of capillaries that encircle them: in puerperal fever the venous capillaries predominate, hence the livid hue of the intestines, and the dusky red colour of the patches and streaks on their surface. In peritonitis, the lymph which is poured out is adhesive, uniting the different parts like glue; if removed from the surface of the intestine on which it is deposited, the strings of this lymph are broken across, and the surface is rough; the quantity of serum poured out is not great, and, being lodged in the cavity of the pelvis, may at first escape observation. In puerperal fever, that which we call lymph is not adhesive; it is much more abundant than adhesive lymph, covering the fundus of the uterus, the intestines, the liver, the diaphragm; it is found also in the pleura; its colour varies from a dusky brown to a pale yellow; it may be peeled off the liver, the intestines, or the uterus, quite easily; the surface from which it is taken is smooth, and that of the intestines is of a dark red colour. The quantity of serum is equally profuse; and this substance being dissolved in it, gives it a lactescent appearance like pus; hence it is called sero-purulent fluid. Thus, when the abdomen is opened, a large quantity of this fluid always escapes. It will be objected that this sero-purulent fluid is also met with in peritonitis. This is perfectly true; but it is necessary to note the stage of the inflammation in which it is observed. We

have never met with it unless in the second stage of the attack. When a patient died in the first stage, there was none of it. We conclude, therefore, that in the former instance (the second stage) such effusions only occurred when the constitution was sinking under the attack; but in the latter, when death took place from a different cause, the effusions noticed were the true products of inflammation. In puerperal fever, the greater the intensity of the seizure, the less the chance of meeting anything like lymph. In the most intense forms no effusions at all may take place. In a degree less intense, a large quantity of serum, coloured brown by blood, is found in the peritoneum and throughout the tissues: the lymph poured out is of the same colour, having no adhesion to the surface on which it lies, as if the fibrine of disorganised blood had been deposited there. In the next degree, the same kind of lymph or fibrine is found, of a vellow colour, with a quantity of sero-purulent fluid. And lastly, in those cases in which the constitution for a time struggles successfully against the fever, some adhesive lymph will be met with, mixed up with a larger quantity of what we have just described. You will perceive that in protracted cases of either disease the morbid appearances most nearly resemble each other; but that, in cases which are quickly fatal, the distinction between them is quite sufficient to enable us to separate one from the other.

It appears to us, then, that neither in the manner of the attack, nor in the symptoms, nor in the morbid appearances, are puerperal fever and peritonitis perfectly alike. We shall presently show you that there is a difference, also, in the treatment. We are not justified, therefore, in calling one disease by the name of the other; and it appears to me just as absurd to call puerperal fever, attended with inflammation of the peritoneum, puerperal peritonitis, as to name every case of pure peritonitis that is met with after delivery puerperal fever. The importance of this distinction will be admitted, if we reflect on the serious mistakes that may arise, and which, in fact, have arisen from such confusion of terms. If, on the one hand, we call puerperal fever peritonitis, we deceive ourselves in the belief that we are

only treating an inflammation, which, although severe, perhaps fatal, differs in no respect from peritonitis in the non-puerperal state or in the male. Our treatment, therefore, may fail because it is misdirected; and the disease that we so name may spread rapidly to other cases, because no precautions are used to prevent the diffusion of an inflammation that we believe is not essentially infectious. On the other hand, to call peritonitis puerperal fever is to sound an alarm most unnecessarily, and may be the means, perhaps, by injudicious treatment, of losing a patient who otherwise might be saved.

Uterine Phlebitis distinct from Puerperal Fever. In place of being commonly met with, we believe uterine phlebitis to be a rare disease. We have already quoted evidence (p. 634) sufficient, we trust, to prove that the uterine veins are very difficult to inflame; if they were very susceptible of inflammation, uterine phlebitis would be the consequence of every severe labour, especially where the child perishes and becomes putrid. The putrid debris of the placenta, pus, and such like irritants, would soon light up inflammation in these veins if they were so irritable as they are supposed to be. We have witnessed numerous cases of puerperal fever, in which the uterine veins were chiefly engaged; but very seldom indeed have we met with cases of true uterine phlebitis.

The history of one case will be sufficient to illustrate its true characters. Some years ago, we were called to a case of flooding in Tottenham Court Road, in which it was necessary to use refrigeration, injecting cold water into the womb, etc., to arrest the discharge. We succeeded; but on the following day the patient complained of headache, and had a severe rigor. On the third day the tongue was dry and furred; the pulse 120. On the fourth day, the tongue was almost black with sordes: the skin was burning hot and jaundiced; the pulse 140. There was no secretion of milk. Partial sweats broke out over the surface; and the patient was delirious.

The treatment pursued gradually subdued these symptoms; but as she was recovering she complained of great pain in the left leg. A swelling was observed in the gastrocnemius muscle,

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all the tissues. Thus then the essential difference between these inflammations and puerperal fever is the same as exists between union and disunion, between building up and taking to pieces, between preservation and destruction.

Having thus endeavoured to prove what puerperal fever is not; it remains for us to enquire what this malady really is. In discussing this part of the question, we can only point out the path that appears to us to lead to the truth; if we cannot succeed in finding it, something at least is gained if we avoid wandering into error.

Characters of Puerperal Fever as a Zymotic Disease.—We consider puerperal fever to be the result of a poison, and its symptoms as manifestations of its action on the constitution. We think it will be found to obey in every respect those laws which the late Dr. Thomas Williams has so admirably demonstrated as common to all poisons.

Assuming, then, that puerperal fever belongs to the class of zymotic diseases and obeys their laws, we shall find—1. That it is an uniform disease. 2. That it selects a tissue for its seat. 3. That it has a certain and definite action. 4. That the action of the poison is modified by the dose, and by the temperament and constitution of the patient. 5. That it has a certain period of latency. 6. That it is generated by the same laws of incubation as exist in other epidemic diseases.

1. It is an Uniform Disease. The best descriptions of puerperal fever in the present day differ in no essential particular from the accounts handed down to us of the malady that raged a hundred years ago. Then, as now, it appeared suddenly, and its presence completely changed the scene. It followed a most destructive course, seizing upon all alike, and causing such devastation as to excite a panic equally in the minds of the profession and of the public. Its disappearance was just as sudden and unexplained as its advent. Such is the manner of its approach and departure in the present day; and in this respect it resembles typhus, yellow fever, cholera, or plague. When the poison is present, the most trifling cause, which would have no effect at any other time, will excite its action:

and further, it will by its influence modify pre-existing diseases.

2. It selects a Tissue for its Seat. We know that this law prevails with all poisons. Arsenic acts on the stomach; digitalis on the heart and kidneys; opium, strychnine, and several others, on the nerves. So, also, the poison of typhus seizes on the glands of the small intestines; cholera on the whole gastrointestinal mucous membrane; diphtheria on the fauces; influenza on the pulmonary mucous membrane; scarlatina and measles on the skin.

The seat of puerperal fever is the serous membranes and those analogous to them. The peritoneum is chiefly engaged, because absorption goes on much more rapidly here than in other serous membranes. During pregnancy, the peritoneum is stretched to its utmost extent. After delivery, it rapidly returns to its original dimensions; and therefore is much more easily exposed to the absorption of any poison. Besides this the uterus and vagina are undergoing the same rapid changes; and quickly convey any poison to the serous membranes in immediate relation to them. The peritoneum is therefore most commonly affected; but the pleura and the synovial membranes do not always escape; and we believe that the arachnoid is sometimes the seat of the poison.

3. The Definite Action is on the blood. The quantity of fibrine is increased, the quality deteriorated. A profuse exudation of morbid fibrine takes place, which has none of the properties of healthy organisable lymph. It is not adhesive; it dissolves into a creamy substance, which when fluid resembles pus, and has been found abundantly in cases where there was not a single symptom of peritonitis. This poisoned fibrine has been found coating the uterus, the intestines, the spleen, the liver, without adhering to them. Creamy fringes border the mesentery; yellow dissolved fibrine is met with in the folds of the intestines, looking like abscesses; the fluid mixing with the effused serum gives it a lactescent appearance—the "abundant milky serum" of authors. Exudations are not met with in the veins; because, not being adhesive, they are carried along by the circulation;

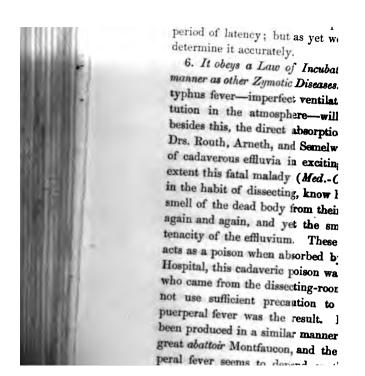
but dissolved purulent-looking fibrine is met with abundantly, not only in the open mouths of the sinuses, but throughout the uterus, giving it, as we have stated, the appearance of a wet sponge filled with pus. Sometimes soft coagula close the sinuses; and occasionally, but very rarely, a vein may be closed by a firm plug of fibrine, just as true organisable lymph is sometimes met with in the peritoneum.

In both instances, the evidences are those of a feeble and fruitless effort to limit the action of the poison.

4. The Action of the Poison is modified by the Dose as well as by the Temperament and Constitution of the Patient. Puerperal fever selects its victims. In the same hospital, and in the same ward, it will not extend from bed to bed, but is found scattered in different directions. When, from any cause, nervous energy is impaired, the poison is freely absorbed. In hospitals, seduced women are always an easy sacrifice; but even among the affluent, powerful secret causes of mental depression may act with as much force, and expose them to its influence. Such causes are generally unknown to the physician, and he is puzzled and disheartened by the result; nevertheless, their existence is certain, and must always be appreciated.

The most important feature, however, of this law, is the manner in which the characters of the malady are modified by the quantity of the poison absorbed. When it is in excess, the patient may die of puerperal fever, without any other symptoms than a fluttering pulse and cold livid surface. Death takes place so rapidly, that there is not time to set up the specific action of the poison. There is an absence of the usual symptoms called inflammatory, and sometimes also no morbid appearances. On the other hand, the dose of the poison may be so small, and its action so feeble, that true inflammation makes the effort to arrest it, and the case may really be peritonitis, phlebitis, or arthritis.

The contradictions in opinion and in treatment among authors, may perhaps be explained by this law. Those who meet the milder forms of the fever, describe and treat it as a local inflammation; whilst those who witness the plague in its full intensity, stand aghast at symptoms, which no theory of inflammation could explain.



head was perforated, and with much difficulty extracted. In two hours afterwards, we were again sent for to remove an adherent placenta. The right arm was first introduced, then the left, and a putrid placenta taken away. On the following day, some pimples appeared on both arms, and became pustules in a few hours; and one of them especially was surrounded by a livid base, having all the characters of the malignant pustule, such as has been observed among the slaughterers in the South of France. It was cut through by Mr. Liston, and cauterized, which prevented further mischief. Exactly at the time when these pustules appeared, symptoms of puerperal fever were noticed in this patient, of which she died on the fourth day.

Thus we have an addition to the chain of evidence so ably brought forward by Dr. Ferguson, to prove that "the phenomena of puerperal fever originate in a vitiation of the fluids, and that the various forms of puerperal fever depend on this one cause, and may be readily deduced from it." The decomposition of the animal tissues will generate the poison of puerperal fever, and vitiate the blood.

But the sudden incursion of the fever which sometimes takes place, the devastation committed, and its equally prompt disappearance, present characters that such causes will not sufficiently explain. We must look for causes among epidemic influences; and hence, when we find typhus in the fever hospitals, erysipelas in surgical hospitals, or any other epidemic prevalent, it is then that puerperal fever will visit the lying-in wards or lying-in chamber—the harbinger of death.

Two Morbid Poisons may co-exist in the same Constitution. This is not a law, but a well-known fact of some importance. Measles may be the companion of whooping cough; erysipelas and syphilis are found together; erysipelas and typhus are met with in the same patient. It need not, therefore, create confusion, if erysipelas and puerperal fever accompany each other; if we find extensive sloughs in the passages, and morbid fibrine in the peritoneum. It seems to us, however, that erysipelas rather precedes and follows puerperal fever, than accompanies it. In

the Dublin Lying-in Hospital, where an experience of this disease had been most accurately formed, erysipelas preceded puerperal fever, disappeared when the latter was in full operation, and returned on its decline. Erysipelas was then prevalent in the Surgical Hospitals; and it is probable that it was taken up by the passages when inflamed, and that this poison excited the puerperal poison. Evidence has now increased, sufficient to prove that erysipelas will excite puerperal fever; and conversely, that puerperal fever will excite erysipelas. But this does not prove that these poisons are identical; each has its specific and definite action; and although one will produce the other, they are not the same. Dr. Gooch, in his highly practical paper on puerperal fever, describes cases with quick pulse, tympanitic, and extremely tender abdomen, with great prostration; but in the post morten examinations of those who died, although the "intestines were found enormously distended with air, there was neither redness, adhesion, nor effusion of any kind;" the peritoneum was pale and colorless. Dr. Gooch calls this puerperal fever; we cannot perceive here any of its true characteristics, but, if we might assume that erysipelas may attack serous membranes, the difficulty would be removed. It would explain the tympanitic abdomen, the prostration, its epidemic character, and the absence of any traces of its existence after death. It might also render intelligible, why patients were killed by depletion, and cured with Dover's powder-a medicine which has never yet succeeded in arresting true puerperal fever. This, however, is only guessing at a cause,-rather an useless occupation. The fever is not puerperal; and just as we have typhus and typhoid fevers, so this might be called puerperoid fever.

The last question in reference to this part of the subject is:

—To what Class of Animal Poisons should Puerperal Fever be referred? Is it a contagion like plague; infectious like typhus; or epidemic like cholera? The evidence of Dr. Gooch, of Dr. Routh, of Dr. Semelweiss, is too strong to allow us to escape from admitting its contagious character. Dr. Gooch has quoted several instances in which this plague has haunted some unfortunate practitioner from case to case, destroyed all his patients, and ruined his practice. We have already alluded to the manner in

which this poison was communicated in the Vienna Hospital, by students coming from the dissecting-room. The poison of decomposed animal matter was brought into contact with the passages by the hands of the students; and thus the puerperal poison was either absorbed or called into action.

This seems to establish its contagious nature: but there are negative arguments against this opinion derived from opposite facts. Those in attendance on patients afflicted with this fever, have failed to communicate the disease. Obstetric physicians go from their lying-in-hospitals into private practice without spreading the fever. Practitioners who meet with it in their circle of practice, do not of necessity spread the malady; although there are some melancholy instances to the contrary.

Negative arguments are always weak; and here especially. If a poison be contagious, it by no means follows that it must always be communicated. If this were the case, measles, whooping-cough, and such like contagions would become universal soon after they appeared in a district. There are many causes, whether constitutional or accidental, which may promote or resist the absorption of a poison. Plague is the most contagious of all poisons; even plague has been resisted, and so may other contagions; but this is no proof that they are not contagious.

TREATMENT. - The treatment of puerperal fever must be considered in reference to the views we have placed before you. We have endeavoured to prove from its history. its symptoms, its morbid appearances, and its nature, that it is the result of a poison, and must be treated as such. To treat it as a local inflammation of any of the tissues is a most dangerous mistake. It is dangerous, because, the character of the disease as arising from contagious poison being lost sight of, this peritonitis or phlebitis may be communicated from patient to patient; inflammations are not contagious, and no precautions are used, being, as it were, unnecessary. It is dangerous, also, because the treatment to combat an inflammation utterly fails when it attempts to control a poison; the mortality, therefore, is increased beyond what it might be. It is dangerous in another sense; to call puerperal fever peritonitis or phlebitis, is like calling typhus fever gastritis or enteritis. The poison is disguised under a false name; and the means necessary to prevent its extension are not employed. The reports of the Registrar General are unavoidably inaccurate, because puerperal fever is returned to him as only so many local inflammations. The treatment, therefore, must be considered in two points of view; the *Prophylactic* treatment, or the means of preventing its extension; and the *Remedial* treatment for the purpose of removing it.

The Prophylactic Treatment is the same for all these maladies so far as cleanliness, perfect ventilation, frequent changes of dress and bedding are concerned; but, with regard to puerperal fever, chlorine seems to have a specific effect. Many years ago, Dr. Collins used it freely in the Dublin Lying-in-Hospital, in cleansing and fumigating the wards. He almost expelled the fever. Dr. Semelweiss has recently adopted it with great advantage. We have stated the manner in which puerpenl fever was communicated by the students. Dr. Routh gives a most interesting account of the means used by Dr. Semelweiss to prevent this. "He recommended all the students frequenting the division (the labour-wards) not to handle dead animal matter, or, if they did, forbad them to make any examination until the following day. In the second place, he directed all students who attended the practice of the division to wash their hands in a solution of chlorine prior to and after every (vaginal) examination made on the living subject" (Med. Chir. Trans., vol. xxxii.). The result of these precautionary measures was that the deaths, which had been from thirty to seventy each month, fell to seven in a month.

These facts prove that chlorine is not only a deodoriset, but a disinfectant. This suggests some important questions. Is the smell a proof of the vitality of the poison? If the smell be removed, is the poison destroyed? We have already alluded to the tenacity of the cadaveric effluvia. The student well knows that the ammoniacal odour, if he be not cautious, may accompany him even in his amusements as well as in his studies; he, therefore, employs every means in his power to avert such a catastrophe. Chlorine will do so; and Dr. Semelweiss has proved that it will do more—it will destroy the poison. If the view be

correct that chlorine is a disinfectant as well as a deodoriser, it has a very important relation to puerperal fever, which is always accompanied by a peculiar odour. To those who attend lying-in hospitals, the effluvia of the lying-in ward are well known; but the odour of puerperal fever is different. It is faintly acid—difficult to describe, but easily recognised by those who are accustomed to this malady. We believe that it is equally tenacious with the cadaveric odour, and that it will accompany the practitioner, unless he be strictly on his guard against it. Chlorine will destroy it, and the mischiefs which it may cause.

Other agents may be employed for the same purpose. Protosulphate of iron is also valuable, because of its power in fixing ammonia. We have therefore, in these agents, a powerful means of arresting a contagion in the outset, which if neglected, will destroy many lives.

Ventilation also plays an important part. Much of the mischief caused by puerperal fever has arisen from our ignorance of the principles of ventilation. The Continental Hospitals are remarkable instances of the neglect of these principles; their mortality varying from one in thirteen, to one in twenty. Some of our own hospitals were liable to a similar objection. The General Lyingin Hospital, built on the marsh of the Thames, had at one period a great mortality from puerperal fever; but the successful efforts which have been since made to secure perfect drainage, have almost expelled that fever from that hospital. Imperfect sewerage is not, however, confined to hospitals. The sewerage of the metropolis is now occupying the public mind; and when we learn that there are a multitude of cesspools carrying out their "feecal fermentations" with an activity which the best ventilation will not remove, it is not surprising, therefore, that puerperal fever should be found scattered through London, or met with even in houses where one could hardly expect it. Ventilation must be strictly attended to; but you must not trust to it alone. Chlorine must also be sedulously employed to prevent danger.

To change the dress and bed-clothes frequently is also necessary; and in doing so the whole surface may be carefully sponged with a weak solution of hydrochloric acid and warm



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the poison by this means. A diarrhœa is often the first symptom. When purgatives, therefore, are used, it must be on the principle of establishing a diarrhea. Armstrong gave a scruple of calomel, followed every second hour by a full dose of salts and senna. The evacuations which followed were at first very offensive; but gradually improved, until they resumed their natural appearance, and the patient recovered. A scruple of calomel is a large dose; but Dr. Copland gave the same quantity; and in India, in the treatment of cholera and dysentery, it was constantly given. It would seem, therefore, that when the constitution is under the influence of a poison, nervous irritability is as it were paralysed, and requires a powerful dose to excite the action of the intestines. Dr. Armstrong used sulphate of magnesia; but we think chloride of sodium would be preferable. In a sufficient dose it is equally purgative, and there is the chance that chlorine may enter the circulation.

Emetics were among the first remedies discovered for the treatment of this disease. In 1782, Doulcet at once checked the progress of this distemper by the free use of emetics. The hint was given him by Nature herself. One of his patients who had been just attacked made several efforts to vomit; he gave her a large emetic, which proved salutary. He continued to give her emetics; and she recovered. This practice was repeated in every instance with such remarkable success, that Doulcet supposed he had found a specific. A second visitation afterwards presented itself, and Doulcet's specific was found of no use. Richter, Tonnellé, and Cruveilhier also found emetics in some cases very useful.

This practice, then, fails in some instances and succeeds in others. Can any reason be assigned for this difference of success? Dr. Ferguson, we think, has given the best explanation. Emetics are efficient "when the violence of the malady has fallen on the liver especially, and when there is early nausea and spontaneous vomiting." In other words, when nature points to the stomach as an evacuant, take the hint, and carry the principle out.

Diaphoretics have been administered with great advantage



and for this purpose antimonials are preferred. Boer used an unknown preparation extensively in the Vienna Hospital. Dr. Gooch supposed it to be "Kermes' mineral"; Dr. Ferguson, "James's powder." Dr. Denman also found great benefit from the use of tartar emetic, acting both as an emetic and in increasing the action of the exhalants.

Diurctics have received very little attention in the treatment of puerperal cuants, we believe them to be very efficie we have found the free use of , and are inclined to think it nitrate of well worth profession. Its action may be as emetics-the infection of the explained of blood being e kidney in place of the liver; but in adop the urine be your guide, and if it is passed frequently, is scanty and loaded, diuretics will be serviceable.

Such are the evacuants used to carry off this poison. The question to decide is, Can the patient bear the evacuation? On this there is the greatest difference of opinion. We have ender-voured to point out that, in the extreme, the ataxic form, depletion cannot be used, but Mackintosh insists that it can and ought. We only mention this to shew the extremes to which opinions reach on important points of practice. No general rule can be applied to all cases. Each must be specially considered, and the character of the epidemic carefully studied.

Stimulants. If evacuants cannot be used we can still have recourse to stimulants; but, in doing so, they must be boldly carried out. We have mentioned Copland's practice of giving eight to sixteen grains of camphor every four hours; using turpentine with castor oil in the same decided manner; and we have no hesitation in agreeing with Dr. Copland, "that there is certainly no remedy so efficacious as a decided use of turpentine."

In reflecting, however, on the principle upon which these stimulants were so beneficial, it appeared to us that something was due to their anæsthetic character—to the relief of pain experienced by the patient; that the exhaustion caused by pain

being thus removed, the stimulant action became more efficient.

If this were true, might not chloroform be useful? We tried
it in some cases, with the following results.

In 1855, we were called to see a woman who had been seized the day before with puerperal fever. The abdomen was extremely painful, and the extremities cold; the pulse 150. We did not think she would live until next day. Thirty minims of chloric æther and twenty of laudanum were given every second hour to relieve the pain. The following day, the pain had been completely removed, and she was comparatively comfortable; but there was no change in the pulse. She, however, rallied so far as to continue in this easy state for nearly a week; but the poison had done its work: the vital powers could not recover themselves, and she sank after a protracted struggle. Subsequently, two other cases came under notice. In the first, the woman had been two days ill. She was propped up in bed, suffering intense pain, and gasping with painful respirations. The same means gave her immediate relief; but she was too far gone to have any hope of saving her. In the second case, this treatment was carried out so successfully that the woman recovered.

In these cases it appears to us that chloroform relieved the pain, and so far prevented nervous exhaustion; while opium acted as a *stimulant* to nervous power.

We do not wish you, however, to adopt or to be led by theories, but rather by facts. We have endeavoured to place before you the principles upon which your treatment should be founded. This seems to us preferable to laying down and advocating any special course, which might very possibly fail of success. The only general rule we can lay down is that of Sydenham, "To study the constitution of the year," and we might also add, "of the place."

### LECTURE XLI.

### PURPERAL MANIA.

PUERPERAL MANIA is one of the most distressing of the disorder that follow parturition. It may last only a few days, or may continue for months; it may be promptly fatal, or require every years before the patient is restored. The derangement cuts of the patient from all intercourse with her friends, and necessarily excites feelings of the most painful anxiety. In those cases where death rapidly takes place, the anguish of those most deeply interested in the patient's welfare may be more easily imagined than described.

Causes.—The causes of puerperal mania are necessarily very obscure. They may be divided into *Predisposing* and *Exciting* causes.

Predisposing Causes. These will be better understood if we consider the intimate relation that exists between the mind and the uterus during gestation and parturition. The mind is then much more susceptible to emotions; a shock produces a more powerful effect than at any other time. Delicate women, when pregnant, often manifest an unusual irritability of temper; they are watchful, and sleep little: so also, during parturition, they sometimes become incoherent; and, although it is but for a moment, such symptoms give evidence of the powerful influence which the function of the uterus exerts over the cerebrum.

The predisposing causes are those that produce constitutional exhaustion, more especially a loss of nervous power. For instance, the constitution may be unequal to the demand made upon it by gestation, and the sympathies of the vital organs are exaggerated to extreme irritation: if the stomach be chiefly engaged, violent

is the result; if the function of the liver be disturbed, jaundice; if the brain, great irritability of temper, sness, and occasional aberrations, are sometimes observed, are the period of parturition arrives. When this process ded, the disturbance of the cerebrum more distinctly itself. In many of these cases, a hidden predisposing y be in operation which it is impossible to investigate, ental depression and anxiety, or any cause that acts ly on the mind predisposes to such attacks. Pregnancy urition produce, in feeble habits, a certain degree of on with which the cerebrum sympathises; some powerful motion is acting upon this organ at the same time; it onger sustain itself, and the mind gives way.

Exciting Causes are those that make a new demand upon itution when in this exhausted state: for instance, when her first nurses her child, or after she has continued to some time, when the secretion of milk begins to fail. I shock is an exciting cause under any circumstances, rights have caused puerperal mania even in women who and and healthy.

OMS .- The symptoms of this melancholy disorder are too allow any uniform description of them; but the simple they all agree in testifying to a complete aberration of llect, is sufficient to prove its nature. The mental nent manifests itself with some within twenty-four or ht hours after delivery, just when the milk ought to fill mæ. The patient exhibits an unusual solicitude to nurse l; it is applied to the breast-no milk flows-the infant, , is dissatisfied and cries out lustily, the mother is equally oursts into tears: soon afterwards, rambling and incohepressions, with constant wakefulness, incessant talking, lessness, give evidence of the approaching attack. In tances, some cause that at another time would have no cites the disturbance. Dr. Gooch mentions the case of vho, after a previous confinement, had "brain-fever," e up to town for her next confinement, in order to have ntage of his skilful attention. "She had a short easy

labour, a good supply of milk, nursed her child, and con to do well for so many days that her friends concluded all was over." Not so, however; on the tenth day, the sho pianoforte maker in Oxford-street caught fire, and a p burning matter fell within her sight. Dr. Gooch saw her two hours afterwards: "she was not herself; her manne agitated; on being questioned about her feelings, she kept for some time, and then answered abruptly; her pulse was and her manner odd and unnatural." She remained v the whole of that night, sent again for Dr. Gooch, asked "did he not observe that a glorious light came from her to and shone about her head"; the mania was confirmed thought she was the Virgin Mary" (Gooch, Diseases of 1 p. 104). This lady soon recovered, and in about three returned to the country quite well. In this case the com between the exciting cause-a burning faggot, and the lur hallucination, is obvious.

In some cases the symptoms present themselves grafrom the commencement; the pulse remains quick after de the night following the patient is restless, her manner is pushe is very irritable, scolds the nurse about the merest insists upon nursing her child, and then suddenly change mind and sends it away. These symptoms gradually men incessant talking, then into incoherency, and ultimately commania. A much more distressing, because more dang chain of symptoms sometimes present themselves. The gradually increases in frequency; delirium sets in soon delivery; the patient remains in this irrational state through the attack, which, we might say, always terminates fatally; times a lucid interval precedes death: it lasts but for a methe aberrations again cloud the mind, and she soon sinks.

Prognosis.—The most important symptom, as a guide prognosis, is the pulse. If the pulse be regular, or only rately excited, the patient will recover; but if it be frequerespecially if its rate increase, a fatal result may be pre The period also, at which the derangement occurs, mudifference in the opinion that is formed of it. Good

observes, that "mania soon after delivery, is more dangerous to life than melancholia beginning several months afterwards." We should wish, however, to confine your attention to the attacks that may take place soon after delivery; those that happen after the patient has recovered from her confinement, do not belong to our present subject. What does this difference in the condition of the circulation indicate? The presence of inflammation of the brain or its membranes? We believe no greater mistake has ever been committed, than adopting with unfortunate haste the affirmative to this last question; the active antiphlogistic treatment that has been used only hastened the fatal termination it was intended to prevent. Puerperal mania is essentially a disease of exhaustion; the loss of power may not extend beyond the cerebrum; the circulation and the other vital functions may remain undisturbed; or it may happen that the constitution generally feels the effect, and the frequency of the pulse give evidence of the excitement. Besides this cause of increase in the action of the heart, there is another and a most dangerous one, that should be carefully looked for, that is the presence of puerperal fever. It is quite possible that the arachnoid, rather than the peritoneum, may be the serous membrane chiefly engaged, and if so, the result may be readily conjectured. Thus then, the pulse, as Dr. Gooch first pointed out, is a most valuable guide to assist us in determining the character of this disorder.

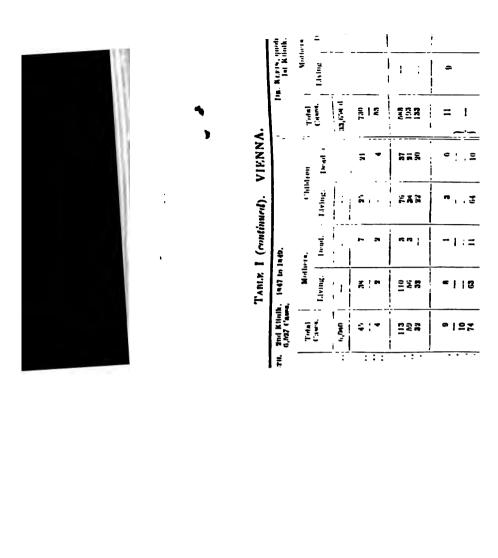
TREATMENT.—This must be governed by the kind of case with which we have to deal. We know of no general rules that you must follow; any that might be laid down rather apply to what should not be done than what you are to do. In this sense, depletion cannot be employed; there may be an occasional exception, but it rather proves the rule. In those cases where the circulation is undisturbed, the treatment consists in the removal of every disturbing cause, and controlling by opium the cerebral excitement. We have already pointed out (p. 432.) the influence of this medicine, when the uterine nerves are exhausted from extreme hæmorrhage so that they do not obey the stimulus applied to excite contraction of the uterine fibres. Here, also, it appears to us that opium acts as a stimulant to the exhausted power of the

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l 	Boys Girls Both Sexes	716,02	111	111	111	111	11,445 10,798 22,243	111	111	21,276	831
	All cases of Labour	20,257			-	1	23,243		,	31.276	837
	un ese These na	mbers in M	ad. Lacha	sello's table	e, do not w	clude defo	Those numbers in Mad. Lachapelle's table, do not notude deformed or premature children	mature ch	lldren.		

CASES IN THE LYING-IN HOSPITAL, DUBLIN, From 15th March, 1745, to 31st Dec., 1861.

	_							
Children died.	373	9	3	95	116	101	106	Z.
Women having Twlus and more.	1.1	•	- эс	13 (1 had 3)	·	1	75	9
Total Sumber of Children.	4049	55	462	4.50	260	632	5+5	49x
GIRLS born.	1943	23	211	761	260	512	<b>500</b>	7.71
BOYS born.	2101	- 68	255	2.28	300	2×3	279	27.4
Delivered in the Hospital.	8975	22	454	406	929	521	233	4X
Went out not delivered.	:	:	-	۲-	2	16	11	E
Received into the Chronic Wards. (Opened 1836.)	:	:	:	:	:	:	:	:
Total Number of Patients admitted.	3975	22	455	413	571	537	200	519
	:	1757	17.58	1759	1760	1761	1762	1763

# TABLE II. GENERAL CONCLUSIONS.

N.B.—The conclusions are not always deduced from the same number of Cases, as me Plan of arrangement is not adopted by every writer herein quoted. In all however, the largest number compatible with a harmony of facts have been

$\exists$		Relative	e Freque	ncy of	ı	:	MORT.	ALITY.		
			ntations a ccidents.	ınd	14	others.		c	hildren	
		rieties of	Special Present- ations and Ac- cidents in ditto.			deaths	portn.	Special Present- ations or Acci- dents.	deaths in	
	Natural Labours	170,336	161,532	948-3	17,726	#3 ———	4.6	32,675	1.119	24.3
<b>!</b> {	ForcepsVectis Crotchet	36,796	1,263 19 406	7·4 •05 2·8	360 16 325	29 0 57	HO 5	833 16 406		230·7 562·8 1000·0
<b>4</b> {	Breech		3,342 1,089 477	19 8 6-9 3-9	714 351 140	9	8 ·2 25 ·6 64 · 2		543 206 428	223°K 313 372°0
Sementiages.	Unavoidable	85,792	153 262 131	1·03 3·2 3·02 4·04		14 10 14	222-9 81-3 115-7 107-9	282 121	92 134 25 25	601-3 489-3 206-6 142-6
- (	Retained Placents	92,319	450	4-15	1×2	25	137:3	151	35	251.6
	Convulsions	134,919	197	1.3	162	25	173.4	167	76	406:4
	Ruptured Uterus	92,319	71	·7,	72	69	9553	69	€5	927-8
	Inverted Uterus	62,744	2	.003	. 2	1	:400.0	1	0	_
	Prolapsed Funis	91,413	354	4-2	265	4	15.09	3:29	1=7	
	Twins	170,336 163,809	1,943	11-4		20	30 5	1,155 6	173	333·3
_	Boys	5×.149 96,148	51,290 47,524	521-6. 4:7-2	=	=	=	6,949 6,361	37× 313	54:3 4:2
	All cases of Labour			_	_	_	_	99,149	4.477	4:6

	<u></u> -	Total Number of Patients of Pa	Received into the (Opened 1636.)	STES Went out not delivered.	Delivered in the Hospital Hospital	BOYS born. 1498 1318	born. born.  9437 85095 1438 1178 11318 1230	Total Kumber Total Kumber of Children.	Women having Twins and more. 1806 [18 had 4 48 59 (18 had 8) 8 6 (18 had 8) 8 6 (18 had 8)	100 (E			ABRIETANTS. Dr. Charles Friselle. Dr. Nowport.
M.D.,	1810 1817 1820 1820 1820	3425 3425 3425 3850 3856 3052		25 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3276 3276 3473 3539 8197 2458 2849	1868 1868 1867 1867	1685 1684 1684 11685 1352	25 25 25 25 25 25 25 25 25 25 25 25 25 2	88 89 89 89 89 89 89 89			:=83168:	Dr. Charles Johnson. Dr. Bobert Shahlston. Dr.Thomas N. Keever Mr. Laha Whitestone.
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CHARLES JOHNSON, M.D., Fourteenth Master.	1841 2218 1842 2362 1843 2417 1844 2422 1845 1615	125 125 90 113	85 183 183 85 85	2025 2025 2171 2188 2176	1046	765 1027 1172 1172 697	2049 2049 22197 2218 2114 1429	== ==	-	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	312223	Dr. S. L. Hardy. "Dr. A. H. M'Clintock. "Dr. John Denham. Dr. H. J. Sibthorpe.
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# IS THERE AN UTERO-PLACENTAL CIRCULATION?

This question has been so surrounded by difficulties, not less from opposing arguments than from contradictory facts, that we have found it necessary to consider the subject in an appendix or to omit it altogether, because it would have occupied too much space

in the lectures as at present published.

In them we have endeavoured to point out the nature of the utero-placental circulation, that the curling arteries of the uterospour their blood not into "venous capillaries," but into what Weber has called "a system of colossal capillaries"—that is to say, into a fine reticulate spongy structure formed by the disciplements of the venous membrane which surrounds the feetal vessels on every side. From this structure the blood passes into the uterine veins or sinuses.

If such be the fact, we should be able to inject the placenta

from the uterine arteries.

The contradictions, however, on so simple a question of fact cannot but excite surprise. The Hunters left most valuable preparations to demonstrate its truth. Dr. Robert Lee, who at first disputed their authority, afterwards acknowledged that vessels did pass from the uterus to the placenta. Bonami, in presence of Cazeaux, injected the placenta from the uterine arteries; and Professor Dalton (American Med. Monthly Journal, July, 1858) was several times able to fill the placenta with air blown into the uterine veins. Yet we have, on the other side. Dr. Meigs, who denies the existence of utero-placental vessels; M. Ch. Robin, of Paris, who asserts the impossibility of injecting the placenta from the uterus; and lastly, Dr. Madge (Lancet, vol. i., 1856, p. 204), who, from experiments, states that no injection can be made to pass from the uterus into the placenta. To determine this point, we have had the opportunity of having a placenta completely attached to the uterus injected by Dr. Sharpey (vide plate II.). All the vessels which would admit the injection to escape elsewhere were tied, and colourless size was injected into a leading artery. While the injection was passing, the placenta was observed to swell. The umbilical vein was injected with vermilion; and when some time afterwards the placenta was examined, the red fætal vessels were observed surroundthe colourless size in every direction. The colourless spaces seen must be the spongy structure, establishing the fact of rect communication between it and the uterine arteries. We also been able to blow air into the placents as Professor on had done, and therefore our experience is conclusive on affirmative of this question.

onami's injections, witnessed by Cazeaux, are accurately

n.

An injection was first made of the venous system of the us through the iliac vein and one of the veins of the ovaries. substance of which it was composed was varnish coloured red lead.

The second injection, made up of spirits of turpentine coloured indigo, was thrown into the uterine arteries from the inferior emity of the aorta. Ligatures had been previously placed on vessels capable of transmitting liquids to the abdominal

The uterine cavity having been next opened at some distance the attachment of the placents, the feetus having been sepal from its membranes, a blackish liquid was squeezed from ressels of the cord, which was nothing but blood. Injections immediately made into the vein and one of the umbinesties, of linseed oil coloured with white wax and yellow a.

These injections having been made with the utmost prulence, eful dissection revealed and established the following.

We perceived, in the first place, very distinctly on the fatal serof the placenta, the red liquid injected into the narrow wins.
by what channel had the injection penetrated so far? That is
point in question to investigate. In separating the placenta
care, it is very easy to see that a sufficiently large number of
vessels appear at the internal surface of the winnit, rang the inter-utero-placental tissue which we have inscribed,
plunge into the tissue of the placenta. These are the arteries
reins, easily recognised by different coloured injections.

l. The Arteries. Their number is considerable—more numerous rds the centre of its interior than in any other portion, though till find some of them, but very much diminished in size, at centimeters from the circumference of the piacents. Their city is very small; they have a diameter varying from two meters to one half a millimeter. They take on in a very the matter a spiral arrangement. Their course is oblique, almost always creep along to the extent of a centimeter—times more before they direct their terminal extremity rds the antiractnosities of the piacents, and evidently possesses.

trate into the tissues even of the placenta. On the uterine side they are evidently continuous with the uterine arteries. Lastly, they have very few ramifications, and these rarely anastomose

with each other.

"2. The Veins which pass from the uterus towards the placents through the inter-utero-placental membrane, have not the same arrangement as the arteries. The veins have a calibre almost equal to that of the arteries. Sometimes they are a little larger, some of them have a diameter of from four to six millimeters. The characters by which it was possible to distinguish them from the arteries were of the last importance in the piece under examination. These were penetrated by liquids thrown into the uterine venous system; they were rectilinear; their very numerous ramifications frequently anastomose with each other and form vast plexuses on the parietes of the cells.

"These plexuses penetrate the uterine surface of the placents at all points, and, on the other side, the dissection exhibited to the naked eye their terminations in the great uterine veins." (Dr. W. Read's History and Treatment of Placenta Prawia, p. 62).

Dr. F. W. Mackenzie (Assoc. Med. Journal, Dec. 1853), removed an uterus with placenta partially attached from a poor woman who died of hæmorrhage, and at University College, under the superintendence of Dr. Sharpey, made the following observations:—

"The uterus, which had been cut off somewhere above its orifice, was first carefully inverted, and several loose adherent coagula removed from its interior. It had the appearance of being very exsanguineous; and from the surface from which the placenta had been detached the ramifications of the utero-placental arteries could be plainly seen, but free from any plugging or coagula. About a fifth of the placenta was still adherent.

"In the next place, the vessels along the cut surface of the uterus were secured by ligatures placed along the line of its division, and the hypogastric and ovarian veins were also secured by ligature. An injecting pipe was now fixed in one of the hypogastric arteries, and some defibrinated blood steadily injected.

The blood escaped freely from the orifices of the utero-placental arteries which had been torn across by the separation of the placenta; none escaped from the torn utero-placental veins, nor did any pass away from the placenta. The injection was continued for some time, but with no variation in the results.

"In the next place, the opposite hypogastric artery was injected; and in this case it was found, as in the other, that blood escaped

ev from the mines of the tour meet-placemal stration, buse a passes, our of the misses—passes of the placema continuous of courants occupe, were the surface of the placema continuous that which tour still address. The important was repeated on interest with the same results.

Inne toes, it admine to the evidence of the Runner, on the coorder or In Louer Le. we have the injections of the coorder or Mackenson, and of the Author, all proving that therein arreins pour taker mood into the placement from whomselves and the mercus woman.

Ter Dr. Merge of Primmermus, it an account of the commission of the merge of a may wise died pregnant, which was exect, remarks: A Norther I northone gentlemer, present upon most minute and careful asserts, saided by good lenses, round ify the existence of ever a single vessel passing from the ni to the phases. Much of the injection was efficied into cellular messes of the phasestar" (Disterves, p. 207).

low dir. I set there: It the language of Romani, that is the stion is investigate. What Dr. Meigs calls "efficient into cellular meaner of the pascents" was the injection passing it the arrenes into the apongy attracture; and although Dr. less magnitude is able to trace those arteries (perhaps because heir ordiquity as exertly as Homani and Mackenzie had done, the very fact of the injection entering the placents proved question in dispuse.

The extreme difficulty of detecting vessels passing from the rus directly into the pissents led not only Dr. Moigs, how pean. Mr. W. Adams (Med. Gasatts, 1847), and, at first, Dr. pert Lee to deny the connection: but this difficulty is proof that they do not do so, it is rather an evidence of impersion in the mode of examination.

Dr. Madge, inving examined the means of a woman who died convulsions, and from whom the child was removed by the sarian section, injected the umbilical vein with warm water, sured, until it returned by the umbilical arteries; and then string made an opening at the external surface of the means responding to about the center of the placents, and having ad a large artery, threw into it an injection consisting, for the e of its running freely, of a small portion of vollon wax ted in clive oil. After injecting as much of the oil and was t was possible to get in, that part of the examination was left if the next day." Dr. Madge further observes:—

'On very carefully lifting the edge of the placemen, and rate. its substance for a few inches from the internal number of the

uterus, using at the same time a powerful magnifying glass, I found that, instead of having torn through arteries and veins leaving large open mouths, which have been supposed to be a fruitful source of uterine hæmorrhage, there was really nothing of the kind to be seen. The placenta appeared to be in opposition with the uterine decidua. . . . It must be remembered that the uterine decidua as yet remained perfect. Finding a little bulging at a certain part, about an inch from the border of the placental attachment, I made a small incision, and immediately a portion of the injection, which I had thrown in at the back of the uterus, made its appearance. On the following day, the injection having hardened, I dissected the uterine substance from without to within: I found the injection in several parts, but the greater portion was deposited in lumps about the size of filberts, on the uterine decidua." Dr. Madge goes on to describe the arrangement of the vessels of the uterus that "the innerthird is made up entirely of a net-work of sinuses without any larger arteries and veins than those necessary for the nutrition of the parts in which they are found. These are small vessels, or continuations of them, and therefore still smaller that pass through the uterine decidua. They are similar to the vessels of new tissues, mere minute canals as imperfectly organized as the tissues they are intended to nourish. All this goes to prove, that fluids do not pass from the mother to the child directly by means of blood-vessels; and also that there are no uterine arteries and veins the rupture of which can give rise to what we call uterine hæmorrhage" (Lancet, vol. i. 1856, p. 204).

We can only refer to the evidence we have given as a proof to the contrary. The uterine decidua, the walls of the uterus, and its network of sinuses, were all examined and described by Dr. Madge, but not a word is said about the placenta itself. It is necessary to know whether there might be what Dr. Meigs calls "an extravasation of the injection into the meshes of the placenta." These experiments of Drs. Madge and Meigs are not sufficiently clear to counterbalance the weight of evidence which has been accumulated in proof of an utero-placental circu-

lation.

Dr. Wm. Read, of Boston, who has written a most valuable essay on the history and treatment of Placenta Prævia, seems inclined to adopt the views of Dr. Meigs. He says, "If it cannot be proved that the maternal blood enters the placenta, it settles the question at once, without the necessity of determining the two-fold nature of the placenta itself. And if it does enter the placenta, it is also difficult to perceive how the maternal blood

can circulate through it: unless we suppose that the maternal portions of the placenta, both arterial and venous, have grown from the division and subdivision of the comparatively few and small utero-placental arteries and veins which pass from the uterus to the substance of the placenta, and is in the smirtest sense a continuation of them " (p. 69). Dr. Read, like Dr. Meigs, does seem to recognise or acknowledge the peculiar character of the circulation in the placenta, which has no parallel in any other part of the body, because its function is altogether different from that of the general circulation. The law, therefore, that applies to arteries and veins elsewhere, which Dr. Read points out, does not of necessity apply to the present case.

The purpose of the circulation is not alone to supply materials to the parts through which the vessels pass, but essentially and chiefly to afford nutriment to the foetal vessels. The blood in the cellular structure of the placenta bears the same relation to the capillary foetal vessels, that the air-cells in the lungs do to

the pulmonary capillaries.

The placenta has been compared to the lungs and to the gills of the fish; air in the one case and water in the other performing the same office as blood in the placenta. It must be viewed, therefore, as a special circulation; and it is not necessary to assume that the spongy structure must consist of divisions and subdivisions of vessels in order that such a circulation should be carried on. Dr. Meigs puts the argument in this form: "I cannot conceive that blood once poured out into the placental cells can ever again go back into the course of the circulation, because it is undeniable that blood once escaped from the contact of the 'endangium' (Burdach's term for the living membrane of the veins), dies and becomes coagulated, which indeed is the same thing as its death. To say that the blood is extravasated into the placental cells, is to say that it is extravasated or dead. There can be, therefore, no such physical condition" (p. 71).

There is a slight assumption in this argument of Dr. Meigs, that the lining membranes of the veins do not extend to the placental cells. It has, on the contrary, been clearly demonstrated that, when the veins arrive at the placenta, the lining membrane is continued and expands to form what Goodsir calls "the great cavity of the placenta," traversed in every direction by innumerable dissepiments of the same membrane, which gives the structure its spongy or cellular character. That blood should circulate in such a tissue is quite consistent, then, with the law

laid down by Dr. Meigs.

The arteries and veins have been clearly seen and described

by Bonami, as they enter and emerge from the placenta. He has also injected the spongy structure, as we have done. Dr. Mackenzie has observed the fluid he injected escaping from the surface of the placenta. We have no hesitation, therefore, in stating that an utero-placental circulation is fully proved to exist.

If this be admitted, we have next to inquire into the source of hæmorrhage in placenta prævia. What takes place when, by its dilatation, the mouth of the womb is torn from its attachment to the placenta? The arteries and veins of the uterus are torn across, and the openings where they communicated with the spongy structure are exposed. The bleeding may take place from the arteries, from the veins, from the placenta, or from all

three together.

Dr. Mackenzie's experiments bear on this question. They go to prove that the chief source of flooding is directly from the uterine arteries, not at all from the sinuses, and but slightly from In such an experiment, some allowance must the placenta. be made for the physical fact that fluids always seek the easiest course; and if any accidental cause prevented the entrance of the blood into the uterine veins or placenta, the force would be directed entirely on the arteries, whose lifeless coats could no longer offer any opposition to the transmission of blood.

Now, the coagula which may have existed, as well as the contracted state of the womb, might be sufficient to prevent fluid from entering the veins, more especially as their relation to the arteries is not the same as elsewhere. With regard to the placenta, some had passed and was observed to flow, but the same difficulty applies to it: coagula in the spongy structure might prevent the fluid from passing in that direction, which

could so easily flow away through the arteries.

Dr. Mackenzie's interesting experiments do not, therefore, seem to us sufficient to establish the fact which he wished to prove. If the arteries were tied so as to imitate the contraction of their torn coats-if this were possible-it could then be determined whether the uterine veins or the placenta allow most of the fluid to pass, which might settle the question so long disputed.

It seems to us, however, to be highly probable that the uterine arteries have a larger share in these hæmorrhages than is generally supposed. The separation of the placenta from the mouth of the womb opens all the sources of hæmorrhage—arteries, veins, and placenta. The bleeding from the arteries is supposed to be checked by the contraction of their coats; that from the veins by the contraction of the uterus; that from the placenta by coagulation in the spongy structure. The dilatation of the mouth of the womb is the contraction of its fibres, and therefore, as it expands, every exposed portion of the veins is compressed by the uterus. So long, therefore, as the contractile power of the uterus remains, hæmorrhage from the sinuses is ab initio under its control.

The contractile power of the arteries may be sufficient to arrest a moderate hæmorrhage, but we are not so sure that it can resist the molimen hæmorrhagicum, the torrent that is directed to the uterus in consequence of the discharge; and if this be true of the broken arteries on the surface of the uterus, it has still stronger force when applied to the arteries entering the placenta, because there is no contraction there, and if the blood flows through them with increased force it may be sufficient to wash away all the coagula in the spongy structure, and produce those frightful floodings which are unfortunately too frequent.

It seems to us, therefore, highly probable that the arteries, not only through the placenta but from the uterus, are a leading

source of hæmorrhage in these cases.

The case of inverted uterus in which Dr. Lever removed the placenta, and the woman died from the gush that followed, is dwelt upon to prove that the sinuses are the chief source of hæmorrhage; but in that case the uterus was relaxed, and whenever it is relaxed the sinuses will bleed; but the case is rather an exception. Dr. Radford, and, before him, Mr. Kinder Wood, several times removed the placenta from the inverted uterus without the least hæmorrhage taking place; thus showing the power of the contracted uterus to arrest the discharge from those sinuses.

Besides this, the direction of the blood is toward the heart; and just in proportion as blood is deficient, the greater is its tendency in that direction to maintain the action of the heart, so that there is comparatively much less force exercised to overcome the contraction of the uterine fibres than that of the arteries.

## TABLE OF CASES OF CÆSARIAN SECTION.

Place.	Total Cases.	Mothers.		Children.		Observations.		
Place.		Living	Dead.	Living	Deed.	Obstations.		
Great Britain. America Europe	58 12 409	11 8 158	46 4 251	35 6 237	25 4 110	Two results not reported. Dr. West's Table.		
Total	479	177	301	278	139			

## BRITISH CASES.

V. V.		47.44	1000000	Duration of	Mothers.		Childre	
No.	Year.	Practitioner.	Cause.	Labour.	_	D.	L.	D,
1 2 3 4 4 5 6 6 7 3 9 10 11 12 13 14 15 16 17 18 19	1737 1739 1740 1769 1773  1774 1774 1775 1777  1793 1794 1795 1798 1798 1798 1798	Mr. R. Smith Mary Donnelly Dr. White Mr. Thompson Dr. Young Mr. A. Wood Mr. Chalmers Mr. John Hunter Dr. Cooper Mr. W. Whyte Mr. Atkinson Mr. Clarke Mr. Barlow Dr. Hull Dr. Hull Dr. Hull Mr. Kay Mr. Wood Mr. Wood Mr. John Bell	Rickets.  Mollities ossium  Ditto Ditto Ditto Ditto Ditto Ditto Ditto Ditto Ditto	12 ,, 24 hours  12 ,,	ï	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
20	1801	Mr. Dunlop			::	1	1	L
				Forward.	2	18	10	10
Case.		A	UTHORITIES.					
1 2 3 4 5 6 7 8 9	Edinburg Hull's De Medical ( Manuscri Hamilton Do,	vol. iii., p. 422. th Essays, vol. v. efence, p. 67. bbservations, vol. iv. pt Lectures, by Dale. 's Outlines. Do. Observations, vol. v. Do. efence.	11 Hull's 12 Mem. 13 Medic 14 Hull, 15 Hamil 16 Hull, 17 Do. 18 Mem. 19 Medic	ton's Outlin	es.	.v.		I. iv.

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# APPENDIX.

### BRITISH CASES-continued.

No.	Year.	Practitioner.	Cause.	Duration of	Moti	Childra.		
NO.	Tear.	Tractioner.		Labour.	L	D.	L	D.
				Forward,	7	41	30	21
50	1851	Dr. Oldham	Scirrhous tumor		1			
51	1853	Dr. Waller	Fibrous tumour		-	1	1	
52	1854	Dr. Simpson*			100	1		1
53	1856	Mr. Humphry		***	720	1		1
54	1856	Mr. Thornton			1			1
55	1858	Dr. Greenhalgh				1	1	
56	1858	Mr. Hawkins	Rickets	I hour	1	100	1	
57	1858	Dr. Murphy	Mollities ossium			1		1
58	1860	Mr. Edmunds	Cancerous mass	6 days	1	1	1	н
	-		at os uteri.		-	1	-	Į.
					11	46	35	2
		Ам	ERICAN CASES.					
1	1822	Mr. Cellin	1 0000	777	1	13	1 1	
2	1847	Dr.Richmond,Ohio	***	***	î	170	li	
3	1827	Drs. Dougal and	***	***	м	**	1 *	А
0	1021	Vanvalsah†		1000		1		
4	1835	Messrs. Nacrede	***	***	2	m		1
*	1000	and Gibson	11	1000	1		1	
5	1837	Dr. Fox and Mr.	***	***	NA.	**	11.4	8
9	1001		4		1		1	а
6	1845	Gibson Dr. Brodie Herdor			i	100	1 .	ı
7	1843	Dr.CyrusFalconer			100	ä	i	41
8	1848	Dr.A. B. Shipman	A tumour	***	-	î	1.	а
9	1850	Mr. M. H. Jetter		255	ï	10		
10	1851	Dr.W. H. Merinar			H	**	100	
11	1851	Ditto	1		î			1
12	1851	Ditto	***		100	1	1	а
12	1001	Ditto	***	12.5	**		E.	
					8	4	6	1
		. A	UTHORITIES.			-	4	Ė
lase.		1	Case.					
50	Lancet,	rol. ii., p. 226, 1851.	54 Lance	t, 1857, p. 3 h Medical Jo	13.	7.70		
51 52	British V	es and Gaz., vol.xxvii., r ledical Journal, 1854, p.	0.266. 55 Britis 1066. 56 Medic	al Times &	Gaze	tte.	858	5
53	Do	Do. 1856, p.		Do.	1860,	rol	Ly	19
		AUTHORITIS	S FOR AMERICAN C	ASES.				
		k Journal, March, 1822.		ican Journal		fedi	cal S	cie
		edical Journal, Nov., 182	N.S.	vol. vi , p. S	264.	120	- 1	-
3		n Journal of Medical Scie es, vol. xvi., p. 346.	nces, 8 Ameri 9 Do.	can Journal Do.	wol.	. NW	P. S	53
4	Do.	Do. p. 543.	10 Do.	Do.	TO	LXX	x1., 1	p, b
5	Do.	Do. vol. xxii., p	, 13. 11 Do.	, and Charle	eston	Me	diga	(1
6	America	n Journal of Medical Sci- ol. xil., p. 386.	ence, for M	larch, 1851. Do.				
	metables V							

<sup>\*</sup> Mother moribund before the operation.

‡ A dwarf, 3½ feet high.

§ Patient sinking before the operation.

§ Cases 10, 11, 12—the same patient, who was delivered successfully twice by the Cesarean section, previous to the third operation, from which she did not recover.

Nothing is adapted by Dr. F. Owen.

#### INDEX.

A

nge in shape of during r, 63. he, 226. in before labour, 205. f muscles of, 202. degeneration of pla-20. , 343. uties of the, 207. lacenta, 204, 483. oducing obstruction, etic action of, 563. e of in obstetric use, )7. a in uterus, 607. 608. 09. ps, 309. 126. during pregnancy, 99. f convulsions, 499. thesia from, 563. 23. See Liquor Amnii. formed, 21, 22. 109. 09, 233, efinition of, 561. See action of, 562. 134n, 141. e pelvis, 153. I pelvis, 157. ression of, in hæmor-

difying puerperal con-491. vith puerperal convulAppetite, disordered in pregnancy 52. Area pellucida, 31. germinativa, 31. Areola, changes in during pregnancy, 59. Arm-presentation. See Presentation. Armstrong, Dr., puerperal fever in the north of England, 649. Arrest of feetal head, 262. causes of, 221, 262. use of forceps in, 271, 309. Arteries, placental, 27, 414. circulation in, 448. uterine, enlargement of, 40, 411. injection of placenta from, 706. source of hæmorrhage in placenta prævia, 712.

Articulation, pubic, 129.
sacro-iliae, 130.
of sacrum and coccyx, 130. sacrum and vertebræ, 130. Artificial feeding of infants, 602. Asphyxia from chloroform, 567. Asthenic convulsions. See Convulsions. Astringents in uterine hæmorrhage, 431. Atlee, Dr., cases of protracted ges-tation, 81. Atrophy of the chorion, 108.

Auscultation in pregnancy, 65.
before perforation, 286.

Axes, pelvic, 136.

Ballottement, 64.
Bandage, application of, 226.
in hæmorrhage, 478.
use of, 203, 227.
Bands, vaginal, obstruction by, 293.

Basin, old name for pelvis, 131. Baudelocque, callipers of, 167.

experiments with forceps, 282. measurements by, 146. on position of head, 188. Baudelocque, M., jun., cephalotribe, 332. Bearing-pains, 186, 207. Beatty, Dr., on ergot of rye, 268n. fibrous uterine tumour, 297. forceps, 359, 363. Beccaria, headache in pregnancy, 53. Beck, Dr., nerves of uterus, 41. Becquerel and Rodier, analyses of blood in pregnancy, 47.
Bed, how to prepare the, 216.
Bell, Sir C., on fibres of uterus, 173, 176. on abuse of forceps, 291n.

Bichat, divisions of hæmorrhage, 407. Biparietal measurement of child's head, 143. Bird, Dr. Golding, urine in preg-nancy, 55. Births, relative danger of male and female, 249. plural, 558. Bischoff, dependence of menstrua-tion on the ovary, 11. Bladder, disorders of during pregnancy, 52, 71. state of, before labour, 205. injury of, from forceps, 279. Blood, changes in during pregnancy, 47. coagulation of, does not arrest uterine hæmorrhage, 529. transfusion of, 437. states of, inducing puerperal convulsions, 497. retention of milk in, 498. action of chloroform on, 564. action of poison of puerperal fever on, 680.

Blood-vessels of placenta, 414, 706. of uterus, 40, 411, 706. hæmorrhage from rupture of, 409. Blundell, Dr., divisions of labour, 171. on forceps, 289. on transfusion, 437. Body, action, weight of, on pelvis, 158.

Boer, face-presentations, 198. Boivin, Madame, measurements by, 196 Bonami, injections of utero-pla-cental vessels, 706, 707. Bone, inference from prominence of, 183. labour delayed by deposit of, 128, 154. law of growth of, 153. Brande, Professor, nature of monstrual discharge, 4. Breast, changes in during pregnancy, 58. pains in during pregnancy, 53. too early application of child to, 598 Breech-presentation. See Presentation. Bregma, situation of the, 142. See Fontanelle. Brim of pelvis, arrest of head above, 257, 326. arrest of head within, 261, 313, 321. axis of, 136. cordiform, 156, 255. definition of, 131. in irregularly formed pelvis, 155, in masculine pelvis, 153, 154, measurements of, 145, 146, 167, 169. oval, 156, 254. passage of head through, 186. plane above, 137. plane of, 138, 140, 145, 146. shape of, 133. Brünninghausen's forceps, 356. Burns, Dr., measurements by, 146. division of labour, 171.

#### C.

Cæsarian section, attempts to supersede, 332.

perforation compared with, 332.

334.

when indicated, 333, 340.

in narrow pelvis, 335.

in mollities ossium, 336.

in obstruction from tumour, 340.

statistics of, 341, 714.

mode of performing, 342.

dangers attending, 342.

in rupture of uterus, 536.

Calendar, obstetric, 76.

Cansardine, Mr., discovery of Cham-berlen's forceps, 352. Capuron, case of early birth, 83. Carbonic acid, evolution of, diminished by anæsthetics, 564. oxyde, action of, 565. Carmichael, Mr., attachment of placenta, 30. Cartilaginous os uteri, 246. Catamenia. See Menstruation. Catheter to be used in forceps operations, 302. Cavity of pelvis. See Pelvis. Cephalotribe, Bandelocque's, 332. Cervix uteri. See Uteri cervix. Chamberlen, Dr. P., forceps invented by, 346, 349. forms of forceps used by, 352. Chapman's forceps, 353. Child, escape of, into abdomen, 535. feeding of the new-born, 598, 602. measurements of head of, 141. operatious to save the, 300, 333. signs of death of, 286. Chin, position of in pelvis, 143. Chlorine in puerperal fever, 686. Chloroform, properties of, 562. action on animal tissues, 563. on blood, 564. on nerves, 566. on cerebro-spinal system, 566. on reflex system, 566. on ganglionic system, 570. on uterus, 569, 581. on parturient woman, 574. on heart, 570. asphyxia from, 567. death from, 567, 571. commencing at heart, 572. at lungs, 567. obstetric use of, 573. degrees of influence of, 573. mode of administering, 576, 583. quantity required, 578. time for administering, 579. indications for obstetric use of, 579. various effects of same dose, 581. test of purity of, 581.

in severe obstetric operations, 583.

in allaying suffering, 584. in unyielding states of the pas-

from its progressive action, 588.

advantages of, 584.

sages, 587.

Callipers, Baudelocque's, 167.

Chloroform, continued. sopor from, not essential, 589. disadvantages of, 589, sickness from, 589. headache from, 590. compared with æther, 590. rules for administration of, 591. Chorion, atrophy of, 108. diseases of, 106. formation of, 21. hypertrophy of, 106. Christison, Dr., case of premature birth, 83. Churchill, Dr. F., crotchet by, 368. on discovery of forceps, 351. division of labours, 171. vomiting during pregnancy, 94. statistics of forceps cases, 275. Circulation, disorders of during pregnancy, 47, 89. in placenta, 29, 414, 706. in uterus, 411. how modified after delivery, 595. utero-placental, 706. Clark, Sir C., laceration of peritoneum, 529. Clarke, Dr. Joseph, on conjugate axis, 144. on large-sized head, 249. on puerperal fever, 646. Clarkson, Mr. J., spontaneous inversion of uterus, 544. Climate, influence of on menstruation. 6. Cloquet, measurements of pelvis by, 146. Coagula in uterine hæmorrhage, 429. in uterus causing after-pain, 607. Coccyx, mobility of the, 129. Cold in uterine hæmorrhage, 430. Collins, Dr., on ascertaining death of child, 287. face-presentations, 198. forceps by, 309, 357, 364, forceps, use of, 273, 275, 291. on hydrocephalic head, 251. laceration of uterus in hæmorrhage, 471. large and ossified head, 250. rupture of uterus, 527. Complex labours. See Labour.

Compression, forceps as an instru-

ment of, 282.

Compression, continued. of aorta in uterine hæmorrhage, 436. of placenta, 454. Conception, 15. Congestion of placenta, 110. See Conjugate axis of pelvis. Conquest, Dr. short forceps by, 309. Constipation during pregnancy, 52, 71, 97. before labour, 206. Contouly's pelvimeter, 156. Contraction of uterus. See Uterus. Convalescence after parturition, 594. Convulsions, puerperal, during pregnancy, 92, 99. at period of labour, 487. asthenic, 496. treatment of, 511. causes of, 496, 504. contrasted with apoplexy, 495. with epilepsy, 493. hysterical, 516. treatment of, 519. from intense pain, 513. from irritation of uterus, 515. modified by apoplectic symptoms, 491. nature of, 492. premonitory symptoms of, 489. sthenic, 488. treatment of, 506. symptoms of, 489. treatment of, 506. varieties of, 487. Copland, Dr., puerperal fever, 654. Cordiform pelvis, 156. effect on passage of head, 255. requiring Casarian section, 336.
Cormack, Dr., theory of cause of puerperal convulsions, 499.
Corpus luteum, formation of, 13. of pregnancy, 16.
Corset, obstetric, objections to, 228.
Cough during pregnancy, 90.
Countenance, alteration in during pregnancy, 47. Coward, Mr., ruptured uterus from

use of ergot, 524.

nancy, 96.

Cows, period of gestation in, 80, 81. Coxal bones, 125. Cracks in the peritoneum, 528.

Cramp of stomach during preg-

described, 368.
Crotchet and craniotomy-forceps
compared, 324. description of, 368. use of the, 322. Cruickshank, observation of a rup-tured Graafian vesicle, 10. Cumulus proligerus, 1. D. Davis, Dr., divisions of labour, 171. forceps of, 358, 361. on forceps in impaction, 289. osteotomist, 331. pelvimeters, 167. phlegmasia dolens, 631. Death of child, signs of, 267, 286. from chloroform, 567, 571. Decapitation of child, 402. Decidua, 18. reflexa, 18, 20, scrotina, 18, 20, uteri, 18, 19. Deformity of feetus, from deficient liquor amnii, 109. of pelvis, 156. how produced, 158. Delivery, m Labour. management of. hæmorrhage during. See Hæmorrhage. mismanagement after, 228, 598. state of patient after, 594, condition of uterus after, 595, 606. Delmas, rupture of uterus from ergot, 524. Denman, Dr., divisions of labour, 171. perforator by, 365. short forceps by, 309. on spontaneous evolution, 403. on stages of labour, 172.

rupture of the uterus, 520, 535. Depletion contra-indicated in uterine

Despondency, effect of on labour,

in puerperal fever, 688.

hæmorrhage, 429. in puerperal convulsions, 511, 514.

Craniotomy, dread of, 281.

324.

forceps, compared with crotchet,

Despondency, treatment of, 241. Effusions, abdominal, in puerperal fever, 668, 675. Eguisier, M., on kyesteine, 55. Development of embryo, 31. ovum, 21. gravid uterus, 35. Electricity in uterine hæmorrhage, pelvis, arrested, 149. 435, 443. Elton, Mr., heads locked in twin-birth, 387. Deviations from standard pelvis. See Pelvis, Embryo, development of, 31. Dewees, Dr, division of labour, Emetics in puerperal fever, 689. Diaphoretics in puerperal fever, Endochorion, 25. 689. Epidemic nature of puerperal fever. Diarrhœa during pregnancy, 52, 71, 679. 96. Epidemics of puerperal fever, 643. before labour, 96, 206. Ergot of rye, effects of on child. Diet, errors in, producing convul-268. sions, 489. in induction of premature labour, after labour, 598. 343. Difficult labours. See Labour. in uterine hamorrhage, 435, 443, Digestive organs, disorders of, during 456. pregnancy, 51, 93.
Digital measurements, 168, 258.
Dilatation of os uteri, how effected, rupture of uterus from use of. 524. Errors in management after deli-175. See Os Uteri. very, 596. Erysipelas compared with puerperal Discharge, purulent, 610. Diseases of the amnion, 109. fever, 662. chorion, 106. pathological appearances in, 670. Evacuants in puerperal fever, 688. Evisceration, 401. fœtus, 115. ovum, 105. placenta, 110. Evolution, spontaneous, 403. pregnancy, 87.
Displacements of the uterus, 103. Examination, vaginal, 209. consequences of too frequent. Distortion of pelvis. See Pelvis. Diuretics in puerperal fever, 690. Douglas, Dr., spontaneous expul-183, 220. early, when necessary, 215. in first stage, 209. sion, 404. objects of, 210, D'Outrepont, Professor, premature in second stage, 219. birth, 84.
Drew, Dr., pelvic tumours obstructing labour, 298. objects of, 220, preternatural 373, 382, 391. in presentations. in unavoidable hæmorrhage, 442. Dropsy during pregnancy, 109. Dublin Lying-in Hospital, puerperal Exhalation, hæmorrhage from, 408. Exhaustion of the uterus, 264, 267. Expulsion of child, 200. fever in, 646. statistical table of cases in, 702. Duparcque, condition of uterus in sudden, 148. rupture, 526. spontaneous, 404.

Dyspnœa during pregnancy, 89. E.

Duration of pregnancy, 73. Duties of the accoucheur, 207.

Ear, diagnosis of portion of, 194, 310. as a test of labour, 220. Edmunds, Mr. J., Casarian section, 340.

Farre, Dr. A., structure of ovisac, 11. an section, contractions of uterus, 44. corpus lateum, 13.

tion.

Face-presentation.

Extra-uterine pregnancy, 123.

False labour-pains, 72, 97.

See Presenta-

Fever. continued. Farre, Dr. A., continued. decidua reflexa, 20. labour during paraplegia 43. muscular structure of uterus, 40. Fatigue distinguished from exhaustion. Fatty degeneration of placenta, 114. Ferguson, Dr. T., heads locked in twin-birth, 386. puerperal fever, 653, 663, 666. Fever, puerperal, 643. Armstrong on, 649. chlorine in, 686. Copland on, 654. depletion in, 647, 688. diaphoretics in, 689. diarrhœa attending, 647-9. disinfectants in, 686. diuretics in, 690. effects of, in modifying other diseases, 664. gastro-intestinal fever, 664. puer eral mania, 665. phlegmasia dolens, 612, 667. emetics in, 689. epidemics of, in Paris, 644. in London, 645, 646. in Edinburgh, 646. in Dublin, 646. in Aberdeen, 647. in Leeds, 647. in Northumberland, 649. erysipelas compared with, 662, 670. Ferguson on, 653, 663, general characters of, 643. Gooch on, 652, 663. Gordon on, 647. Hey on, 648. history of, 644. laws regulating occurrence of, 679. Leake and Hulme on, 645. Mackintosh on, 651. Malouin on, 644. nature of, 671, 679. pathology of, 688. peritonitis distinguished from, 672. by symptoms, 674. by pathology, 675. poison of, 684. purgatives in, 688, stimulants in, 654, 690,

symptoms of, 658. modifications of, 660. Tenon on, 644. Tonnelle's vie \*s on, 656. treatment of, 647—685. prophylactic, 687. remedial, 688. remedial, 688.
nterine phlebitis distinguished from, 677.
White on, 645.
a zymotic disease, 679.
Fingers, measurement of pelvis by 168, 258. Fissured nipples, 604. Fistula from use of forceps, 279. urethral, from vaginitis, 615. Flatus, producing after pains, 608. Fleischman, Professor, case of early birth, 83. Fleming's chloroform inhaler, 583. Flooding. See Hæmorrhage. Fontanelle, anterior, 142. anterior and posterior diagnosis of, 192. Fœtus, deformity of, from deficient liquor annii, 109, development of, 31, 34. diseases of, 115.
motions of, 63, 92.
sound of heart of, 65.
syphilis in, 115.
See Child, Head, and Labour.
Food of child, artificial, 602. Foot-presentation. See Presentatation. Forceps, Beatty's, 363. Brünninghausen's, 356. Chamberlen's, 352, Chapman's and Giffard's, 353. choice of, 363. as a compressor, 282. Baudelocque's experiments, 282. dangers arising from, 279, 285, 289. Davis's, 361. objections to, 362. objections to, 362.
fenestræ of, 358.
Gregoire's, 355.
history of, 346, 349.
length of, 356.
of handles, 357.
of blades, 357.
long and short, 305.
measurements of, 369. modifications of, 319.

Forceps, principles followed in con-Giffard's forceps, 353. on delivery in hæmorrhage, 459. struction of, 360. Smellie's, 354. Gooch, Dr., on inverted uterus, 548. puerperal fever, 652, 663. statistics of use of, 274.
use of, when head is fixed above Goodsir, Professor, structure brim, 260. placental villi, 29. when head is fixed in brim, 262, 313. when head is arrested in pelvis, 272, 280, 309. when head is impacted, 282. Gosselin, M., exchloroform, 571. objections, 288. when head rests on perinæum, Graafian vesicle, 1. 306, 308. when face is towards pubes, 11. 318. in face-presentations, 318. in puerperal convulsions, 508. in ruptured uterus, 532. varieties of, 355. craniotomy, 368.

Forces acting in the production of deformed pelvis, 158.

Fox, Dr. Tilbury, researches on phlegmasia dolens, 637. of pelvis, 149. Fraser, Dr. case of deformed pelvis, Funis, attention to in breech pre-407. sentations, 378, 380. coiled round the neck, 224. general view of, 407. management of in labour, 225. prolapse of, 550. in first stage, 551. accidental, 440. causes of, 440. in second stage, 552. delivery by forceps in, 552. symptoms, 442. delivery by turning, 552. treatment, 443. pulling at, a cause of inversion of turning on, 445. uterus, 543. post-partum, 473. reposition of, 554. shortness of, 544. Funnel-shaped pelvis, 156. causes, 475. uterus, 480. G.

Gaitskill's vectis, 301, 348. Gardiner, peerage case, 74.
Gastro-intestinal fever, 664.
Gastrotomy. See Cæsarian section.
in ruptured uterus, 536. Germany, use of forceps in, 275, 276. Germinal membrane, 21. spot, 2.

vesicle, 2. Gestation, 15. See Pregnancy. Gibson, Mr., Cæsarian section, 335.

circulation in placenta, 417. Gordon, Dr., puerperal fever, 647. Gorilla, an example of infantile development, 151. experiments with changes in during menstruation, changes of, in conception, 15.

Gravity, influence of, on form of pelvis, 158. Gregoire's forceps, 355. Grinding pains, 185, 206. Growth of embryo, 31. Growths, morbid, obstructing de-

maintaining hæmorrhage, 424. Hæmoptysis during pregnancy, 90. Hæmorrhage, Bichat's divisions of,

from exhalation, 408. importance of studying, 406. from ruptured blood-vessels, 409.

after removal of placenta, 484. before removal of placenta, 474. from irregular contraction of

from stricture of cervix, 481. from morbid adhesion of placenta, 483. from uterine inertia, 474. symptoms, 475, 483.

treatment, 476, 481, 482, 483. unavoidable, 445. source of danger in, 446.

natural means of arrest, 446. sources, 448, 712. symptoms, 451. diagnosis, 452. treatment, 453.

Hæmorrhage, continued. where hæmorrhage is commencing, 453. in extreme exhaustion, 458. turning dangerous, 459. separation of placenta, 460. summary of rules of treatment, 472. uterine, 410. at various periods of gestation, 410. from partial separation of placenta, 419. natural means of arrest, 421. after complete detachment of placenta, 421. from relaxed uterus, 422. from contracted uterus, 423. reciprocity of, with atony of uterus, 424. influence of nervous system on, 425. influence of, on nervous system, 427. treatment of, 428. danger of syncope in, 428. effect of coagulation in, 429. depletion injurious on, 430, cold in, 430. astringents and styptics, 431. predisposed to, by large pelvis, 148. stimulants in, 431. opium in, 432. ergot of rye in, 434. electricity in, 435. irritation of uterus in, 435. compression of anterior, 436. transfusion in, 437. special forms of, 439. before birth of child, 439. two varieties, 439 with inversion of uterus, 547. in abortion, 120. Hæmorrhoids during pregnancy, 100. Haighton, Dr., obstinate vomiting during pregnancy, 93. Hand, inference from shape of, 155. presentation. See Presentation. Hardy, Dr., effects of ergot, 269n. Hardy and McClintock, Drs., facepresentations, 199. inversion of uterns, 544. liability of epileptics to puerperal convulsions, 497.

Hardy, etc. continued. treatment of prolapsed funis, 533, 554. Hawkins, Mr. J., Caesarian section, 335. Head, arrest and impaction of, 237, 261, above brim of pelvis, 257. at brim, 261. forceps in, 282, 313. perforation in, 321. in cavity of pelvis, 262. forceps in, 282, 309. perforation in, 321. results of, 264. treatment of, 270, 280. a cause of laborious labour, 247. compression of against pelvis, 243. descent of, 133, 134, 140, 144, 186. in diseased pelvis, 255. in masculine pelvis, 154, 253. diagnosis of position of, 192, 220. of proportion of, 220. expulsion of, 200, 201. hydrocephalic, 251. male and female contrasted, 249, measurements of, 141. perforation of, excessive, 249. perforation of, 320. at perinæum, 199, 223. application of forceps to, 306. positions of, 108. diagnosis of, 192, 220, faulty, 221, 248, table of, 190. retardation of, causes of, 257. at outlet, 292 by bands, 293. by tumours, 294. rotation of, 144. Heads locked in twin-birth, 386. Headache during pregnancy, 53, 91. from chloroform, 590. Heart, affections of, during pregnancy, 89. action of chloroform on, 570. sounds of feetal, 69. Heat in animals, 2. Hemiplegia not interfering with labour, 102. Hey, Mr., puerperal fever in Leeds, 648.

Hip-presentations, 385.

Holmes, Mr., his perforator, 367.
Hulme, Dr., puerperal fever, 646.
Hunter, J., nature and source of menstrual discharge, 415.
structure of placenta, 416.
Dr. W., the decidua, 18, 19.
fibres of uterus, 176.
circulation in uterus, 411.
Hydatids, uterine, 107.
Hydrocephalic head, 251.
Hydrocephalic head, 251.
Hydrocyanic acid, 563.
Hygienic rules in labour, 218. See Labour.
Hypertrophy of chorion, 106.
Hysteria in labour, 236.
Hysterical convulsions, 516.

T.

Ilium, 125. articulation of, on the sacrum, 130. Impaction of head. See Head. Incontinence of urine, 52, 71, 102. Inertia of uterus, 202, 229, 474, 486. Infantile pelvis, 149, 158. Inflammation of fibrous structure of uterus, 619. of lining membrane of cervix, 618. of uterine cavity, 619. of os uteri, 183. of parturient passages, 264. of peritoneum, 620, of placenta, 111. post-partum, 613, of subperitoneal tissue, 624. of uterine veins, 627. of uterus, 401, 618. turning dangerous in, 401, of vagina, 613. sthenic, 614. asthenic, 616. Ingleby, Mr., uterine hæmorrhage, 501. rupture of uterus, 524.

Inhaler, chloroform, 576, 583.
Injections of the placenta, 706.
Insomnia during pregnancy, 52, 90.
Instruments, obstetric, 345.
Interstitial gestation, 123, 124.
Intestines, flatas in, producing afterpains, 533.

Inversion of uterus. See Uterus. Irritation, direct, in hæmorrhage, 435. Irritation, continued,
nterine, a cause of convulsions,
500.
of organic viscers, producing convulsion, 515.
Iron, sulphate of, in puerperal fewer,
686.
Ischium, 126.
planes of, 126,
spine and tuber of, 128.
Janser, M., source of menses, 5.
Jaundice during pregnancy, 98.
Johnson, Dr., sickness during pregnancy, 93.

K.

Kane, Dr., on kyesteine, 56.
Kidney, disorders of during pregnancy, 99.
connection of disorders of with
puerperal convulstons, 498.
Kiwisch's mode of inducing premature labour, 344.
Knee-presentations, 384.
Knox, Dr., cause of obliquely ovate
pelvis, 165.
Kyesteine in urine during pregnancy, 55.

L.

Labour, definition of, 170. division of, 171. Labour, complex, 406. definition of, 406, divisions of, 406, Hæmorrhage, Convulsions, Uterus, (Rupture and Inversion of), Funis (Prolapse of), and Twins. Labour, difficult, 231 causes of, 232. subdivisions of, 232. Labour, laborious, 247. causes of, 247. from irregular position of head, 248. from excessive size and ossification of head, 249. from hydrocephalus, 251. from masculine pelvis, 252, from diseased pelvis, 254. modes of retardation of head in, 257, 261. effects of, 264.

Labour, continued,

inflammation of uterus and vagina from, 264, 266. exhaustion of uterus from, 264, 267. ergot of rye in, 268. delivery of child in, 270. statistics of interference in, 274. use of forceps in, 274, 282. conclusions regarding, 280. management of cases of impaction, 280. value of auscultation in, 287. from retardation of head at outlet, 292. from vaginal bands or adhesions, 293. from ovarian tumours, 294. from polypus, 296. from fibrous uterine tumour, 297. from osteosarcoma of sacrum, 297. from rare varieties of tumour, 298. Labour, natural, actions of uterus during, 174. passage of head in, 186. passage of head in, 189.
dilatation of perinæum in, 199.
separation of placenta in, 201
premonitory symptoms of, 205.
management of first stage, 206. duties of practitioner in, 207. vaginal examination in, 209, 219. duration of first stage, 215. preparation of bed in, 216. hygienic instructions in, 218. management of second stage, 219. supporting perinæum in, 222. management of funis, 224, 225. of third stage, 226. removal of placenta, 226. abdominal bandage, 226. retention of placenta in, 229. preternatural, 370. definition of, 370. divisions of, 370. See Presentation. Labour, tedious, 232, causes of, 232. from over-distended uterus, 232. from obliquity of uterus, 234. from escape of liquor amnii, 236. from hysterical excitement, 236. from mental despondency, 237. from rigidity of cervix uteri, 242. Laceration of perinæum, 611. of os uteri, 540. of vagina, 542.

Lachapelle, Madame, positions of head, 190. Lactation, establishment of, 595. causes interfering with, 600 excessive, 602. deficient, 602. Lactic acid, Dr. Mackenzie's experiments on injection of, 636.

La Motte, difficult delivery in armpresentation, 397.

Lauvergnat, proceeding in Casarian section, 342. Leake, Dr., puerperal fever, 645. Lee, Mr. H., experiments on inflammation of veins, 633. Dr. R. first appearance of menses, 8. nerves of uterus, 41. measurements by, 146. on hydrocephalic head, 251. on use of forceps, 291, 315. on use of forceps, 291, 313.
structure of placenta, 416.
uterine hæmorrhage, 460, 470.
Legroux, collodion liniment for
nipples, 605.
Legs, ædema of, in pregnancy, 100.
Le Roy, operation proposed by, 333.
Lever, Dr., separation of cervix
nteri, 541. Lever, Dr., uteri, 541. Ligaments of pelvis, 129,
Limbs, character of, an indication of
condition of pelvis, 155, 164.
Linnaeus, on first appearance of menstrustion, 7. Liquor amnii, deficient, 109. excessive, 109, 232. use of, 177. gradual escape of, 236. escape of, producing rigid os uteri, discharge of in induction of premature labour, 455. Lochia, 609, purulent, 610. Lowder's vectis, 348.
Lumbo-sacral articulation, 130.
Lymph effused in puerperal fever, characters of, 675, 678. Lymphatics, connection of disorder of with phlegmasia dolens, 637.

M.

Mackenzie, Dr. F. W., phlegmasia dolens, 634. utero-placental circulation, 708, 712. Mackintosh, Dr., puerperal fever, 651. Macula germinativa, 2.
Madge, Dr., utero-placental circulation, 709. Malouin, puerperal fever, 644. Mammary sympathies, 58. Management after delivery, 226. errors in, 228, 596. Mania, puerperal, 692, causes of, 692. modified by puerperal fever, 665. symptoms, 693. treatment, 695. Marriages, early, objections to, 151. Masculine pelvis, See Pelvis. Maton, Dr., superfectation, 122. Mauriceau on Chamberlen's forceps, 352. Measurements of child's head, 141. pelvis, 135. at brim, 135, 167. of outlet, 139. transverse, 141. of plane above brim, 137. at brim, 138. of cavity, 138. eighteen healthy pelves, 145. table as given by various authors, 146. of diseased pelves, 169. digital, 168, 258. Measuring pelvis, instruments for, 166. Mechanism of labour, 170. See Labour. Meconium, indications of breech-presentations, 371. Meigs, Dr., protracted gestation, 81. craniotomy and Cæsarian section, 335. utero-placental circulation, 709. Menses. See Menstruation. Menstruation, 2. characters of discharge in, 3. denotes period of puberty, 3.
source of discharge, 5.
recurs periodically within reproductive period, 6. influence of climate on first appearance of, 6. statistics of first appearance of, 7. various causes hastening, 9. periodic interval of, 10.

Menstruation, continued. time of cessation of, 10. dependent on the ovary, 10. changes in ovary connected with, 11. probable objects of, 14. cessation of as a sign of pregnancy, 49. Mental despondency, effects of on labour, 237. Merriman, Dr., division of labours, 171. stages of labour, 172. Metro-peritonitis, 620. Mialhe, M., test of chloroform, 581. Micturition, diseases of during pregnancy, 52, 71. Milk, presence of, as a sign of preg-nancy, 61. See Lactation. Milk-fever, 599. Miscarriage, 119, 120. Mismanagement after labour, 228, 596. Moles, uterine, 114. Mollities ossium, effect on pelvis, 163 indicating Casarian section, 336. Monro, Dr., measurements by, 146. Montesquieu, polygamy in the East, 7. Montgomery, Dr., corpus luteum, 16. decidua uteri, 19. disturbance of temper in pregnancy, 52. urine in pregnancy, 54. changes in the arcola, 59. duration of pregnancy, 82, premature births, 85. Moreau, measurements by, 146. deformed pelvis, 160. Morning sickness, 51. Mortality in laborious labours, 274. in forceps operations, 276. in Cæsarian section, 341. tables of, in various labours and accidents, 697-701. Motions of child, active, 63. passive, 64. distressing, 92. Mucous coat of germinal membrane, 21, 32. Müller, on menstruation, 3. Murmur, placental, 65. Muscles attached to ilium, 126. action of, in producing deformed

Opium, continued. Muscles, continued. in puerperal fever, 691. s uteri. See Uteri os. pelvis, 160. Os uteri. See Uteri os. Osborne, Dr., remarkable case by, abdominal, action of in labour, Muscular fibres of uterus, 39, 173. 327. action of, 174. Osteo-sarcoma of sacrum, obstrue-Osteo-sarcoma of sacrum, obstrue tion from, 297. Osteotomist, Dr. Davis's, 332. Ould, Sir F., his perforator, 365. Outlet of pelvis. See Pelvis. Ovarian gestation, 123, 124. tumours impeding delivery, 294. Ovary, periodical changes in, 1. Naegele, utero-placental murmur, 66 obliquely-ovate pelvis, 157, 164. position of head, 190, 194. interference in protracted labour, 278. perforator, 366. Natural labour, 170. dependence of menstruation on, 10. Ovate pelvis, 156, 254, 261. means of arresting hæmorrhage, 421. Nauche, M., urine in pregnancy, 54. Cæsarian section in, 340. Over-distension of uterus, 232. Ovum, escape of in menstruation, 10. Nerves of uterus, 40. pressure on, during pregnancy, 71. changes in after conception, 15, 21 Nervous centres, formation of, 31. system, disturbance of in pregdiseases of, 105. Owen, Mr., circulation in the nterus, nancy, 51, 90. influence of, on uterine circulation, 412. 425. P. influence of hæmorrhage on, 427. influence of uterine irritation on, Pain, uterine, convulsions from, 513.
Pains, false, 72, 97.
grinding, 185, 206.
bearing, 207.
after, 607.
Palpitation during pregnancy, 89.
Paralysis after phlegmasia dolens, 501. action of chloroform on, 566. Neuralgia during pregnancy, 53, 92. uterine, 609. Nicholson, Dr., puberty in the West Indies, 9. Nipples, changes in during pregnancy, 59. fissured, 604. Nunneley. Mr., action of anæsthe-641. Paraplegia not interfering with labour, 43, 102.
Parkes, Dr., urine in pregnancy, 57.
Parturition. See Labour.
Pelvimeters, 166. tics, 565. Nurses, errors committed by, 597. Pelvis, the female, 124. bones of, 124. planes of, 126, 136, articulations of, 129. O. Obliquely ovate pelvis, 157, 164. true and false, 131. effects of wide or narrow brim of, Obliquity of uterus a cause of delay in labour, 224. Obstetric calendar, 76. Obstructions to labour, accidental, 131. cavity of true, 132. 292, plane of, 138. brim of, 133. plane of, 138.

outlet of, 134, 139, 141.

passage of head through the, 113,

134, 137, 140, 141, 143, 144.

measurement of, 135.

axes of, 136.

Obstetric calendar, 76.
Obstructions to labour, accidental, 292,
Œdema during pregnancy, 89, 100.
Oldham, Dr., Cæsarian section, 340.
Omphalo-mesenteric vessels, 22, 25.
Operations, obstetric, 299.
Opium in exhaustion of uterus, 268.
in uterine hæmorrhage, 432, 456.
in puerperal convulsions, 514.

Pelvis, continued. tables of measurements of healthy, 145. deviations and deformities of, 147. varieties of deviation, 147. over-large, 147. too small, 149. arrested development of, 149, 165. infantile, characters of, 149. male and female compared, 152. masculine, as influencing labour, 154, 253. irregularities in axis of brim, 155. in form of cavity, 156. deformed, 156. ovate, 156, 254. cordiform, 156, 255, 336. production of the, 159, obliquely ovate, 157, 165, mode of production of deformi-ties of, 158. forces acting on the, 158. deformity described by Moreau, 160. action of muscular forces on, 160. effects of rickets on, 162, 254. mollities ossium, 163, 255. means of measuring, 166. diseased, table of measurements of, 169. masculine and diseased contrasted, 255. arrest of head above brim of, 257, 326. digital measurements, 258. arrest of head within brim of, 261. in cavity of, 262. conditions of, indicating Cæsarian section, 341. distorted, with preternatural presentation, 385. difficulties from deformity of, in arm-presentation, 399. disproportion of, in cases of rup-tured uterus, 522. Perforation, indications for, 320. manner of performing, 321. Perforator, use of, 322. description of, 365. of Sir F. Ould, 365. Smellie's, 365. Denman's, 365. Nægele's, 366.

Perforation, Holmes's, 367. Simpson's, 367. Perincum, dilatation of the, 199. supporting the, 222. laceration of, 611. Periods of pregnancy, 45. Peritoneal coat of uterus, 39. Peritoneum, cracks in the, 528. inflammation of, 620. effusions in, in puerperal fever, 668. Peritonitis, in fœtus, 117. in puerperal female, 620. symptoms, 620. treatment, 621. pathological appearances, 623. distinction from puerperal fever, 672. Phlebitis, uterine, 627. distinct from puerperal fever, 677. experiments of Mr. H. Lee ou, 633. of Dr. Mackenzie, 634. relation of, to phlegmasia dolens, 633. Phlegmasia dolens, 629. theories of causation of, 630. treatment, 639. with puerperal fever, 667. Placenta, formation of, 25. structure of, 25, 415 circulation in, 29, 414, 706. situation of, 30. diseases of, 110. congestion of, 110. inflammation of, 111. softening of, 113. fatty degeneration of, 114. separation and removal of, 206, 226. retention of, 202. from closure of vaginal sphineter, 202. from suspended uterine action, 202, 229. from irregular contraction of uterus, 203, 231. from adhesion, 204. without hiemorrhage, 229. hemorrhage from partial separa-tion of, 419, 440. complete separation of, 421. fragments of, left in uterus, 423. prævia, 445.

See Hæmorrhage.

739 25082

artificial removal of, 400.

manner of attachment to remove
preci, 400.

management of, in registered
attenue, 500.
in invected messar, 540.
injections of, 704.
Plantes, pelvin. See Polois.
Plantes, pelvin. See Polois.

ntes, pelvic. See Peiris.
chiara, a prolimposing cause of
puerperal conveniences, 488, 487,
agency file vagina, failure of, 444,
aral hirzhe, 508.

Poison of paerpend fever, 679.
Polypua, aterine, impeding labour, 296, 424.
diagnosis of from inverted ateres, 547.
Positions of head. See Head.

Post-parton homotrhage, 47%, inflammation, 61%, fever. See Fever. Practitioner, obstetric, daties of the, 207.

Pregnancy, symptoms and signs of, 45. periods of, 45. symptoms and signs of first period,

of second period, 58.
of third period, 71.
disorders of circulation during, 47, 62, 71, 89, 100.
syncope in, 47, 62, 89.

62, 71, 89, 100.

syncope in, 47, 62, 89.

state of blood in, 47.

changes in uterus during, 48, 62,
71.

in vagina, 49, 72.
cessation of menses as a sign of,
49, 73.
disorders of nervous system in,

51, 90.
sickness during, 51, 93.
treatment of, 95.

disordered appetite in, 52. insontinence of urine in, 52,71,102. retention of urine in, 52, 71, 102. arrhoes in, 52, 71, 96. matipation in, 52, 71, 97. uterations of temper in, 52.

disturbed rest in, 52, 90.
headache in, 53, 91.
neuralgic pains in, 53, 92.
toothache in, 53, 92.

Programs, continued, districts of secretion in \$3. subsection in \$3, \$4. state of secretion in \$4.

in irrest and arrels during 5 milk in irrests as a sign of, 61

distings in chapt of abdomen firming 63, 75. active mediums of chief in, 63, 74. ballettement us a sign of,

discential marmar in, 65.

continue front heart in, 65.

the regarding diagnosis of, 70.

hearing of, 72.

modes of calendaring, 73.
question of fixed period, 74.
calendar for calendaring, 75.
tables showing variations in 78.
period of, in cases of, 79, 81.
period of, in cases, 80.
shortest period of, 83,

summary of evidence regarding, 55. table of, in lunar and calendar months, and in weeks, 86.

months, and in weeks, 86. diseases of, 87. table of, 88. palpitation in, 89. celema in, 89, 100.

dyspaces in, 89.
hemoptysis in, 90.
cough in, 90.
convalsions in, 92.
disorders of digestive organs in, 93.
pyrosis in, 93.

cramp of stomach and duodenum in, 94. false labour-pains during, 97. jaundice in, 98. albuminuria in, 99.

varicose veins in, 100.
hæmorrhoids in, 101.
hemiplegia in, 102.
paraplegia in, 102.
retroversion of uterus in, 103.
prolapse of uterus in, 104.
extra-uterine, 123.

Premature labour, 83, 121, 343.
Presentations of head, 186, 188.
face, 196.
varieties of, 196.
diagnosis of, 197.
consequences of, 198.

Presentations, continued. preternatural, 370. classes of, 370. complicated with distorted pelvis, 385. breech, 371. varieties of, 371. anterior dorsal, 372, posterior dorsal, 373. diagnosis of, 374. digital examination in, 375. treatment, 376. mode of delivery, 376. rotation of child in, 379. not to be interfered with prematurely, 380. foot, 382. diagnosis of, 382. treatment, 383. knee, 384. hand and foot, 386. heads locked, in twins, 386. hip, 385. shoulder and arm, 388. mechanism of, 389. anterior dorsal, 390. posterior dorsal, 390. diagnosis, 391. signs, 392. treatment, 392. of cases presenting no difficulty, 393. where turning is difficult, 396. where turning is impracticable, 401. spontaneous evolution in, 403. Pressure-effects of gravid uterus, 71. Preternatural labour. See Labour. Pretty. Mr., his bandage in homerrhage, 478.

Prolapse of the funis. See Funis.
of uterus during pregnancy, 166. See Uterus, Promontory of secrum, 128. Protracted gestation, 74, 78. Puberty, phenomena of establish ment of, 3. Pubic angle. arch, 127, 145. nes, symphysis of, 129. division of, 232. Puerperal convulsions. See Convalsions. fever. See Fever. mania. See Mania.

Palse, vaginai, 49.

Purgatives in puerperal convulsions. Purulent deposits in puerperal fever, 668. lochia, 675. Putrescency of uterus, 52%. Pyrosis during pregnancy, 95. Q. Quickening, 63, 74. P Radford, Dr., forceps by, 315. Ramsbotham, Dr., me by, 146. positions of head, 190. on use of forceps, 289. instruments for decapitation, 403. theory of puerperal convuisions, 493, 495. puerperal convulsions from irritanion, 500.

Read, Dr. W., statistics of placenta pravia, 467. utero-placental circulation, 710. Reflex nerves, action of chloroform en, 516. Reid, Dr., period of gestation, 82. Raid. Dr. John, structure of placenta, 26. Reproductive period of female life, 4. Respiration, effect of chloroform in. Rest, disturbance of during prognanev, 52, 90. Retention of urine in programmy, 102. of piacents, 199. Estimists structure of piecents. Ser Placenta. Retroversion of uterns, 192. Rickets, distortion of polyistrom, 161. Riselin, on use of throups, 234. Righy, Dr., measurements by, 146. division or labour by. 171. mening in exhaustion, 45%. Egidity of as useri. See ()s weri. Byor coims. 47. Robertson, Mr., secieties of menstructum, & Rasiman. Dr., case of presenture birth, 33. Reminuscen, inventor of the vertice,

148. IAT.

Borneign of child's band, 186.

Routh, Dr., table of cases of transfusion, 438. prevention or puerperal fever, 686. Rupture of uterus. See Uterus. Ryan, Dr., obstetric calendar, 74.

S. Sacro-iliac synchondrosis, 130. Sacro-ischiatic ligaments, 132. Sacrum, description of the, 121. promontory of, 128. excessive projection of, 168. osteo-sarcoma of, 297. Salivation during pregnancy, 53, 98. Savonarola, urine in pregnancy, 54. Scissors, Smellie's, 365. Secretions, disturbances of, in pregnancy, 53, 98.
Semelweiss, Dr., prevention of puerperal fever, 686.
Seminal fluid, effects of, on ovum, 15. Semple, Mr., secretion of milk inde-pendently of pregnancy, 61. Sensations, peculiar, a sign of preg-nancy, 73. Separation of placenta. See Placenta. Serous coat of germinal membrane, 21, 32. Sharpey, Dr., formation of decidua, 18. preparation of ovum, 25. Shaw, Mr., paraplegia during pregnancy, 102. immature pelvis, 151. Shekelton, Dr., case of delivery through narrow pelvis, 340. Sherwood, E., case of, 327. Shields, nipple, 605. Shoulders, expulsion of the, 224. See Pre-Shoulder-presentation. sentation. Show, nature of the, 72. Sibson, Dr., effect of chloroform, 571. Sickness, morning, 51. from chloroform, 589.

Signalt, operation proposed by, 333. Simon, Mr., urine in pregnancy, 56.

Simpson, Dr., state of heart during

pregnancy, 61.

protracted gestation, 80. inflammation of placenta, 111. Simpson, Dr., continued. syphilis in the feetus, 116. relative dangers of male and female births, 249. influence of time on mortality in labour, 272. perforator by, 367. structure of placenta, 413. Skin, changes in, during pregnancy, 57. Sleep, disturbance of, in pregnancy, 52, 91. Smellie, description of old forceps, 353. forceps by, 354. scissors of, 365. scissors of, 365.
difficulty of delivering in armpresentation, 397.
turning in exhaustion from hamorrhage, 459.
Smith, Dr. Tyler, epilepsy and
puerperal convulsions, 497. experiments with chloroform, 570. Snow, Dr., effect of chloroform, 565. Softening of placenta, 113, of uterus, 527. Sopor from chloroform not necessary, 589. Spencer, Earl, gestation of cows, 80. Spine, influence of deformity of, on pelvis, 159. of ischium, 128. Sponge-tents, 344. Spontaneous evolution, 403. Stages of labour, 171. Stature no criterion of pelvis, 149. Stethoscope. See Auscultation. Sthenic convulsions. See Convulsions. Stickings, Mr., case of placenta prævia, 462. Stimulants in uterine hæmorrhage, 431, 443, 456. in puerperal convulsions, 514. in puerperal fever, 690. Stomach, cramp of, during pregnancy, 96. Strother, puerperal fever first named by, 644. Styptics useless in uterine hæmorrhage, 431. Subperitoneal tissue, inflammation of, 624.

Superfectation, 122. Supiot, Madame, case of, 163. Sympathies, mammary, 58. Symphysis pubis, 128. division of, 333. Symptoms and signs of pregnancy,

Syncope during pregnancy, 89. produced by large pelvis, 148. dangerous in uterine hæmorrhage, 428

Syphilis in the fœtus, 115.

T. Tables of first appearance of menses, symptoms and signs of pregnancy, 46, 58, 71. analysis of blood in pregnancy, 48. obstetric, 76. periods of human gestation, 78, 82, 86. periods of gestation in cows, 80. premature births, 85. measurements of child's head, 143. measurements of eighteen healthy pelves, 145. measurements of pelvis by various authors, 146. measurements of nine diseased pelves, 169. divisions of labours, 171. stages of labour, 172. positions of head, 190. changes of position, 195. results of protracted labours, 274. results of forceps cases, 276. results of compression by forceps, measurements of forceps, 369. cases of transfusion of blood, 438. results in placenta pravia, 466, 468. results in puerperal convulsions, 509, 510. ruptured uterus, 521, 522, 536,

537. results in prolapsed funis, 553.

anæsthetic agents, 562. labours and their results, 698-701. cases in the Dublin Lying-in Hospital, 702.

cases of Casarian section, 714.

Tait, Mr., case of early delivery, Tedious labour. See Labour. Temper, how affected in pregnancy. 52.

Temperature, its influence on menstruation, 6.

Tenon, puerperal fever, 644. occulta, Sir F. Ould's, Terebra 365.

Tessier, Mr., periods of gestation in lower animals, 81.

Tonnellé, theory of puerperal fever, 656.

Toothache during pregnancy, 53,

Toughness of os uteri, 245. Transfusion in hamorrhage, 437. results of, 438.

Trask, Dr., statistics of placenta przyia, 465. of ruptured uterus, 521, 536.

Tubal gestation, 123, 124. Tuber ischii, 128.

Tumours impeding delivery, 294, requiring Casarian section, 339. Tunica albuginea, 1. Turning in shoulder-presentations,

mode of performing, 394. difficulties in, 396.

from rupture of membranes, 396.

from mismanagement, 398, from deformed pelvis, 399, when impracticable or dangerous, 401.

in accidental hæmorrhage, 445. in placenta prævia, 457. in ruptured uterus, 535. Twins, heads locked in, 386.

sizes of, 558. symptoms, 559. treatment, 560.

#### U.

Umbilical cord. See Funis. vesicle, 22. Unavoidable hæmorrhage. See Hæmorrhage. Urethra, position of orifice of, 212, Urine, incontinence of in pregnancy. 52, 102. retention of, 52, 102,

Urine, continued. Uterus, continued. inflammation of, 267, 613, 618. changes in during gestation, 54. kvesteine in 54. rendering turning impracticable, albumen in, 99. 401. of veins of, 627, 677. inversion of, 543. causes of, 543. Uteri cervix and os, cartilaginous, 246. chloroform in compression of, 579. conditions of, 182. diagnosis, 547 from large pelvis, 148, 135, from pulling at funis, 343, spontaneous, 544. dilatable, 182. dilatation of, 175. displacement of, 235. examination of, 211. inflammation of, 183. symptoms, 546. treatment, 548. irritation of in hæmorrhage, 435. of lining membrane, 618. muscular sphincter of, not proved, laceration of, 520. 176. general conditions of, 520. seat of, 520. extent, 521. rigidity of, 182, 242. degrees of, 183. effect of on labour, 184. may occur in any labour, 521. causes of, 242. in uterine hæmorrhage, 471. more frequent with male children, 522. time of, 523. causes, 523. mechanical, 523. separation of, 541. structure of, 481. toughness of, 245. Utero-placental circulation, 706. pathological, 525. murmur, 65. thinning and softening, 526. Uterus, action of, in labour, 42, 174. putrescency, 528. inefficient, 232. symptoms, 529. blood-vessels of, 40, 411, 447, 707. premonitory, 529. changes in after-delivery, 595, actual, 530. 606. treatment, 531 during gestation, 35, 48, 62, 71, preventive, 531. 410. when rupture has occurred, circulation in the, 411, 447, 708. 532. coagula in, producing after-pains, rules for delivery in, 539. muscular structure of, 172, 391. See Action and Contraction. 6Ö7. coats of, 39. contraction of muscles of, 174. nerves of, 40. order of, 179. Wigand's views on, 44, 179. neuralgic pains of, 609. obliquity of, extreme, 234. over-aistension of, 232. where os is rigid, 184. irregular, 203, 229, 231, 483. after coagulum of placenta, 204. effect of chloroform on, 568, 581. pathological states of in puerperal fever, 668. in rupture, 525. peritoneal coat of, 39. of ergot on, 270m. exhaustion of, 264. polypus of, impeding labour, 296. symptoms and treatment, 267. prolapsus of, during pregnancy, fibrous tumour of, impeding de-105. livery, 297. putrescency of, 528. gravid, changes in, 35, hæmorrhage from. S retroversion of, during pregnancy, See Hæmor-103. softening of, 527. source of menstrual discharge, 5. rhage. hour-glass contraction, 483. thinning of, 526. tumours of, impeding delivery, inertia of, 229.

296.

relation of to hæmorrhage,

V.

Vagina, alteration in colour of, during pregnancy, 49.
inversion of, in large pelvis, 147.
discharge from, 72, 206.
closure of sphincter of, on placenta, 202. inflammation and sloughing of, 264, 266. bands and adhesions in, 293. plugging the, 454. laceration of, 542. changes in, after labour, 607. inflammation of, sthenic, 614. asthenic, 616. Vaginal examination. See Examination. Vaginal pulse, 49.
Varicose veins in pregnancy, 100.
Vascular system, development of, 32. Vectis, description of, 300. Gaitskill's notes for using, 301. cases in which it may be used, 302. how to apply, 302. disadvantages attending, 305. history of the, 347. Veins, pressure on during pregnancy, 71. varicose, 100. of the uterus, 411, 708.
inflammation of. See Phlebitis
and Phlegmasia Dolens.

Velpeau, cause of placental murmur, 66.

measurements by, 146.

Velpeau, continued, stages of labour, 172. Ventilation necessary during labour, 218. in puerperal fever, 617. Ventral gestation, 123. Vesico-vaginal fistula from use of forceps, 279. Vomiting in pregnancy, 51, 93.

W.

Wagner, description of early ova, 24, 25.

Waller, Dr., Cæsarian section, 340. partial placental presentation, 463.

Weber's description of arrangement of placental vessels, 418.

White, Mr., puerperal fever, 645.

Whitehead, Dr., first appearance of menses, 8.

Wigand's views on uterine action, 44, 179.

Y.

Yelk, segmentation of the, 21. Young, Professor, puerperal fever in Edinburgh, 646.

Z

Ziegler's forceps, 359.
Zona pellucida, 2.
Zymotic characters of puerperal
fever, 679.

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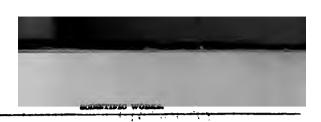
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